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The U.S. Government's Global Hunger & Food Security Initiative

OUTGROWER BUSINESS MODEL LEARNING STUDY

A CONSULTANCY TO ASSESS THE SUSTAINABILITY OF OUTGROWER BUSINESS MODEL SERVICE PROVISION AND OUTGROWER BUSINESSES' NETWORKS EFFECTIVENESS AND EFFICIENCY IN ENGAGING OTHER ACTORS IN THE VALUE CHAINS

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DISCLAIMER

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ACRONYM LIST

ADVANCE	Agricultural Development and Value Chain Enhancement
AMSEC	Agricultural Mechanization Service Center
CAADP	Comprehensive Africa Agriculture Development Program
CABI	Centre for Agriculture and Bioscience International
DADU	District Agriculture Development Unit
EPA	Environmental Protection Agency
FAO	Food and Agricultural Organization
FAW	Fall Armyworm
FBO	Farmer-based Organization
FGD	Focus Group Discussion
FRI	Farm Radio International
FtF	Feed the Future
GCB	Ghana Commercial Bank
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit / German Society for International Cooperation
M&E	Monitoring and Evaluation
MFI	Monetary Financial Institution
MoFA	Ministry of Food and Agriculture
NBFI	Non-banking Financial Institutions
NF	Nucleus Farmer
OB	Outgrower Business
PERSUAP	Pesticide Evaluation Report and Safe Use Action Plan
PH	Post-Harvest
PHH	Post-Harvest Handling
RADU	Regional Agriculture Development Unit
SHF	Smallholder Farmer
SSP	Spraying Service Provider
USAID	United States Agency for International Development
VAA	Village level Agro-input Agent
VSLA	Village Savings and Loan Association
WC	Working Capital
WFP	World Food Program

EXECUTIVE SUMMARY

Since its inception in February 2014, the USAID-funded Agricultural Development and Value Chain Enhancement project (USAID's ADVANCE project) has increased the competitiveness of the maize rice and soybean value chains in northern Ghana, fostering inclusive economic growth and reducing poverty among smallholder farmers and the population at large, in line with USAID Ghana's Feed the Future (FtF) strategy. USAID's ADVANCE project uses a market systems approach to catalyze private investments in improved service delivery to value chain actors. Approximately 130,000 smallholder farmers have realized higher levels of productivity from improved services as a result of USAID's ADVANCE project's interventions.

Central to USAID's ADVANCE project's approach is the selection of mid-sized farmers and traders who operate at an attractive scale for input, extension and financial service providers. The project assists these actors to become outgrower businesses (OBs), providing or brokering access to improved quality services to smallholders.

This study evaluates the sustainability of OBs, employing USAID's 5R framework (resources, roles, relationships, rules, and results) to evaluate OB sustainability. The objectives of the study are to:

1. Understand the development and current status of the business **relationships** of the OB and how they interact to impact on business operations.
2. Capture the landscape of actors within the OB supply chain and document their **roles**, including those of women and youth, in terms of nature, quality, and evolution over time.
3. Assess how the presence or absence of formal and informal **rules** (including social norms) affect the behavior of actors and impact business operations and profitability.
4. Establish the **resources** generally available to the OB and the extent to which they are accessed and leveraged for business operation and profitability.
5. Determine the sustainability of the OB model through analysis of business **results**, business and social relationships/networks, including current and emerging risks and opportunities related to business operations and performance.

By collecting and analyzing data on 265 OBs (consisting of 20 females (7.5 percent) and 245 males (92.5 percent) operating in 63 districts in five administrative regions of Ghana, the study found that OB operators have been in business for seven years on average. The average age of an OB owner is 50 years. Moreover, it is observed that the majority (77%) constitutes a larger segment of the economically active population (30-60 years) of OBs and this gives some confidence to the system's ability to sustain the relationships established.

Evaluating OB Relationships

Unless otherwise stated, the findings in this section derive from the OBs' November 2018 survey data collected to determine the sustainability of the OB model. The study generally attempts to determine the strength and impact of business relationships between OBs and outgrowers (OGs), which encourage business health and sustainability. Moreover, strong and impactful linkages between OBs and other value chain actors potentially lead to OBs' financial risk reduction and enhance the sustainability of their respective enterprises.

The survey examined two kinds of relationships: the relationship between OBs and value chain actors (excluding the OGs), and the OB-OG relationship. The OBs connect with value chain actors in five different arenas: advisory/extension, buying/selling, finance, market information, and any other relationship resulting from their connections.

Based on the 2018 data, all OBs (100 percent) demonstrated at least one linkage to a value chain actor. As business entities, all OBs have developed linkages with five broad businesses types, including financial

institutions (both banking and non-banking), retail input suppliers, buyers/aggregators, government agencies, and other actors, such as seed growers, and food processors.

Thirty-one OBs reported connections with financial institutions. Twenty OBs had some level of linkage with 10 formal banks, while 11 OBs mentioned relationships with seven non-banking financial institutions (NBFIs) within the past year. Ghana Commercial Bank (GCB) had the highest number of linkages to OBs (4 OBs connected with them), while the Ejuraman Rural Bank had linkages with three OBs.

Approximately 20 retail input dealers, maintained linkages with 30 OBs, while 45 OBs mentioned having business networks with 25 buyers/aggregators within the past year. Sizeable agro processors such as Agricare and Premium foods had business networks with USAID's ADVANCE project's OBs. Among government agencies, the Ministry of Food and Agriculture (MoFA) is a key entity that is connected to 28 OBs. In general, all OBs reported at least one business network or linkage, mainly for agribusiness transactions. Compared to the 2016 OB profitability study, where it was determined that 83 percent of OBs were linked to other value chain actors/business entities; the 2018 survey showed that 100 percent of OBs had one or more business linkages to value chain actors, representing a 20 percent increase. The majority (56 percent) of surveyed OBs networked with at least one actor over the past one year, while one OB had linkages with 11 actors during the same period.

While gathering OBs' opinions about the strength and impact of their business linkages with value chain actors through 483 responses from the 265 participating OBs (suggesting that an OB connected with an average of three actors), the majority (70 percent or 337 OB responses) perceived the strength of their connections with various value chain actors as high, 25 percent (123 OB responses) view it as medium, and only 5 percent (23 OB responses) perceived the strength of their relationships as low. Furthermore, 71 percent (345 OB responses) perceived the impact of their connections as high, 25 percent (123 OB responses) rated the impact as medium, and 4 percent (18 OB responses) viewed it as low. The continuous business connections with key actors will remain relevant for the growth and sustainability of the OB model.

The 2016 profitability study reported that OBs linked to 2.4 actors on average, ranging from 0 to 10 linked actors per OB. The 2018 survey reports that OBs linked to three actors on average. In this regard, OBs expanded their networks in 2018 compared to two years ago, which is a good indication of business progress towards sustainability. The survey shows that OBs networked with a wide and diverse range of actors, including business relationships with financial institutions, agro-input dealers, distributors/wholesalers, local and international buyers, government agencies, other OBs (incl. OB networks), consultants/advisors, NGOs, and donor projects.

In 2017, 113 OBs (43 percent) aggregated/marketed products, while 77 OBs (29 percent) did same in 2018 at the time of the study. These survey findings indicate that some OBs did not aggregate/buy from OGs, beyond receiving produce in payment for pre-financed inputs. The core business of an OB is to provide services to OGs and to receive payment in kind at harvest, while aggregating produce through direct purchases from smallholders is done depending on market price dynamics and demand from large buyers and processors.

The OBs generally provide five categories of services to their OGs: tractor services, pre-financing (input credit), input retail, shelling/threshing services, output marketing, and extension and training. Based on the business and social networks formed through business dealings, most OBs (70 percent) consider the strength of their established relationships with OGs to be very high. With respect to how such networks impact their business operations, 71 percent of OBs recognize a high impact on their agribusiness activities. These positive outlooks are prerequisites for business success and sustainability, alongside positive operational performance. When comparing the number and strength of OB business networks between 2016 and 2018, 162 OBs (82 percent) and 223 OBs (84 percent), respectively, reported increases in the number and strength of their business networks.

Role of OBs and Actors in the Value Chain

The OBs play a vital role in smallholder farmers' activities in the project's operational zone, and the prospects for business sustainability are encouraging. OBs currently provide a variety of services to OGs. There is evidence of unmet demand for OB services by OGs, alongside growth in OB service provision. Some of the support services are geared towards building the capacity of the OG clientele, which is very diverse and include men, women, and youth.

The OBs serve commercial functions, including providing tractor services (land preparation), input credit, threshing or shelling services, and output marketing services. The OBs' involvement in tractor services and input credit appear steady between 2016 and 2018. During the same period, the proportion of OBs offering threshing/shelling and output marketing services dropped. On average, an OB plowed for 391 clients in 2017 and 387 clients in 2018; the average area plowed per OB was 580 acres in 2017, rising to 746 acres in 2018.

The highest growth rate was in the quantity (maize) threshed/shelled per OB between 2017 and 2018, which rose by 359 percent. This is followed by input credit (prefinancing), in terms of the monetary value of inputs given to OGs on credit in a year, which jumped by 135 percent between 2016 and 2017. Over the same period, the growth rate of tractor services (measured in terms of acreages ploughed) was 85 percent. These are impressive growth rates in services provided by OBs when compared with 14.4 percent and 20 percent for input credit and tractor services, respectively, reported for 2016. These figures provide evidence of expansion in OB service delivery from 2016 to 2018.

The OBs diversified their operations to foster or enhance business sustainability, especially provision of facilitating services (extension and training). The data suggests a slowing pace (or slow growth) in the provision of facilitating services (i.e., extension and training) when compared to 2016, but simultaneously points to some dynamism, with new services including mentorship of other OBs and provision of market information to OGs. Through savings groups called village savings and loan associations (VSLAs), many OGs reported being able to pay cash for critical farm inputs at the time of share-out. This reduces the need for or overreliance on input credit from OBs and expands the potential reach of OB resources to more OGs.

On average, an OB had 267 OGs in 2017 compared to 276 OGs in 2018. OBs also plough for other clients for cash. For over 80 percent of OBs, at least 10 percent of their OG base is youth; indeed, 33 percent of OBs reported that up to 40 percent of their outgrower farmers are youth (18–29 years). Therefore, the OB model could potentially contribute substantially to addressing a critical national challenge—rising youth unemployment. Note that apart from the OGs, OBs also provide other opportunities such as village level agro-input agents (VAAs) and safe spraying service providers (SSPs).

In 2018, 51 percent of OBs provided tractor services for 95 percent or more of clients who used their services in 2017; 47 percent of OBs plan to repeat this service in 2019. For input credit in 2018, 71 percent of OBs provided services on credit to at least 66 percent of OGs to whom they prefinanced services in 2017; and 80 percent of OBs plan to maintain service to such clients in 2019. This shows OBs' and OGs' willingness to maintain long-term business relationships.

The OB-OG relationship is a repeated principal-agent game (rather than a one-off interaction). Hence, its stability and sustainability depend on the quality of service. Repeat demand or purchase and repayment rates for services obtained on credit are important for gauging the health of the relationship. The more OGs an OB carries over their relationship from one period to the next, the more beneficial for both parties. This is a sign of a good and healthy relationship that is mutually beneficial.

Rules that Govern OB Relationships

The OB relationships, especially involving OGs, appear to be governed by informal and formal rules to equal extents; or even more by informal than formal rules. Majority of OGs receive inputs or services on credit without signing written contracts with the OB; the marketing of farm produce by OBs does not seem any different. There are also cases in which contract enforcement appears to rely more on social

norms than legal action; social norms may be both more effective (where individuals fear being tagged as deviants or outcasts) and less costly than court action. Thus, while OBs engage in efforts at formalizing their operations, they also rely on informal rules and social norms.

Unlike in 2016, when 170 OBs (86 percent) reported having formal business registration, 210 OBs or 76 percent and 193 OBs (73 percent) were formally registered as businesses in 2017 and 2018, respectively. In all, 249 OBs (94 percent) reported keeping records, with 201 (76 percent) of them using a register compared to only 22 OBs (11percent) reported using an excel spreadsheet for recordkeeping in 2016. The use of mobile money is an emerging technology in the payment and settlement system. A total of 130 OBs (49 percent) in 2017 and 138 OBs (51percent) in 2018 reported receiving payments using mobile phones. Similarly, 51 percent of OBs reported making mobile-phone based payments in 2017 and 52 percent of them used the platform for payments in 2018. The majority (62 percent) of OBs have considered succession planning. However, 73 percent of OBs either have no financial statements (31 percent) or have unaudited financial statements.

The extent to which OBs enter into marketing contracts is an additional indicator of the commitment to a set of rules to guide transactions. Contracts provide a guaranteed market, which is important for coordinating production, providing security to help OBs and OGs invest with greater confidence, and promoting business growth and development. The results show that in 2017, 52 percent of OBs used verbal contracts to market their maize; 22 percent did not use any agreement, and another 22 percent of OBs market their maize through written contracts. Only 5 percent of OBs stored their maize for the purposes of off-season sales.

In the case of rice, 44 percent of OBs used verbal contracts for output marketing; 28 percent did not use any agreement, and another 23 percent market their rice crop through written contracts. Another 5 percent stored their rice for the purposes of off-season sales. For soybeans, 46 percent of OBs used verbal contracts to market their product; 30 percent did not use any agreement, and another 19 percent marketed their soybean through written contracts. A total of 5 percent stored their soybeans for the purposes of off-season sales. From the information above, the use of written contracts in marketing transactions appears higher in 2016 than in 2017. The 2016 report indicates that 43 percent (85 OBs out of a sample of 198) of all product sales were guided by written contracts and 31 percent (61 contracts) by verbal agreements.

Investing and Leveraging Resources

This section seeks to determine what resources OBs accessed in 2018, and how OBs leveraged these resources to ensure effective business management and profitability. The primary focus of OBs is access to finance, as this was the biggest constraint to business growth identified by OBs in 2016. To meet working capital requirements, OBs continue to invest in their business operations and leverage their resources (e.g. accounts receivable; machinery, equipment including movables; and inventories (stored product) to obtain loans. Though information on the extent to which OBs leveraged their resources for loans in 2016 is not available, the evidence for 2018 indicates that cumulatively, 36 percent (71 OBs) did not need to apply for loans. Nevertheless, access to financial services remains one of the top three constraints to business growth among OBs.

In 2018, 23 percent of OBs reported having a line of credit or a loan from a bank or non-bank financial institution. Land, buildings, and ownership of a firm were popular forms of collateral required by lending institutions (32 percent of respondents). In addition, 14 percent of OBs accessing loans used accounts receivable, 18 percent used machinery and equipment, including movables, and 4 percent used inventories. During the 2018 operating year, 36 percent of OBs did not need to apply for a loan, while 30 percent chose not to apply for a loan, citing unfavorable interest rates. Another 11 percent chose not to apply for a loan due to 'application procedures being too complex' and 'collateral requirements being too high'. A total of 9 percent did not apply for a loan for various other unspecified reasons.

In 2017, 172 OBs (65 percent) provided or invested in some form of staff training. In 2018, a slightly lower number,167 OBs (63 percent), provided or invested in staff training. Other results show that 126

OBs (47.5 percent) in 2017 and 73 OBs (27.5 percent) in 2018 reported investing in land or buildings. The average investment in land or buildings per OB was GHS 25,965.48($5,770.10)[1] in 2017 and GHS 22,894.11 ($5,089.58) per OB in 2018. In total 159 OBs (60 percent) reported more than GHS 20,000 ($4,444) in capital investment into their businesses in 2018.

An OB required working capital of GHS 21,315 in 2017 to provide tractor services (this excludes investments in capital equipment); this amount increased to GHS 28,050 in 2018. A similar trend is observed for input credit delivery: GHS 48,026 (2017) and GHS 63,486 (2018). These figures illustrate that OBs face lower working capital requirements to venture into tractor services than participating in input delivery. Total volumes of maize significantly dominated the three marketed commodities within the project's operational zone, although soybean was the most traded commodity on a per capita basis, while maize was the least. The working capital requirement is highest for maize, requiring an estimated GHS 99,312, and lowest for rice.

The survey identified logistics and transportation (34 percent), access to financial services (19 percent), and outgrower loyalty (side-selling, input credit repayment) (17 percent) as the top three constraints to business growth that OBs face. The 2016 survey identified the same constraints as barriers to OB growth; logistics and transportation and access to financial services only swapped places, with logistics and transportation being at the top.

Results: OB Business Performance

Generally, OBs are profitable, with good operating profit margins commensurate with the scale of business activity. Each business unit operated by OBs (i.e., output marketing of maize, rice, and soybeans, tractor service provision, input retailing, prefinanced input, and shelling/threshing services) are also profitable. The average operating gross margin per OB are as follows: output marketing (18 percent), tractor services (19.8 percent), input retailing (0.6 percent), prefinanced input (mark-up of GHS 2,779 per OB), and shelling/threshing services (33 percent).

These findings have implications for the sustainability of the OB-OG model with respect to business performance. However, these margins must be improved upon to ensure long-term business existence and performance.

Additional investments of new machinery, equipment, and infrastructural facilities into an already existing business points to business confidence to expand operations. A total of 44 OBs purchased either used or new tractors for their operations in 2017, and 28 OBs purchased 37 used or new tractors in 2018. With regards to threshers/shellers, a total of 25 OBs purchased 33 new or used threshers/shellers in 2017, representing an average of 1.3 per OB. In 2018, 20 OBs purchased 24 new or used threshers/shellers, representing an average of 1.2 per OB. Also, 11 OBs spent GHS 215,000 to renovate or construct warehouses. Such investments in tractors and shellers/threshers, which amounts to GHS 1,746,360 ($388,080) for 2017 (tractors, n=38; shellers, n=14) and GHS 1,402,516($311,670) for 2018 (tractor, n=21; shellers, n=18) provide an indication of willingness to invest and positive business performance.

Maize was the most traded commodity by volume traded (about 94.7 percent) by OBs and OGs in 2017. Maize contributed the highest profits to OBs of the three tracked commodities, recording a 94.6 percent share in total profits. Maize also contributed the highest average operating profits per OB, returning GHS 31,651 ($7,033.6) per OB, followed by soybeans (GHS 4,619) ($1,026), and rice (GHS 3,246) ($721). On average, maize provided the highest profit margin for OBs at 22 percent, followed by rice and soybeans, respectively.

Most OBs (98%) provided tractor services (including ploughing, harrowing, seeding/planting, agrochemical application, and haulage) to OGs in 2017 and 72% of OBs provided the same services in 2018. Ploughing provided the highest average revenue in both 2017 GHS 47,188 ($10,486) and 2018 (GHS 61,581) ($13,685), while tractor repair services presented the highest cost component for OBs. Average operating profit for tractor services over the period increased by 90 percent, from an average of

[1] Exchange rate: GHS 4.5 = $1in the whole report.

GHS 10,084 ($2,241) to GHS 19,177 ($4,262), with OBs making an average margin of 14.9 percent (2017) and 19.8 percent (2018). These figures illustrate that OBs are improving their profit margins.

Forty-five OBs retailed inputs in 2017. This declined to 30 OBs in 2018. Retailed agricultural inputs include inorganic fertilizers, pesticides, weedicides, improved/hybrid seeds, and knapsack sprayers. Inputs retailing yielded an average operating profit per OB of GHS 117,631 in 2017, declining to GHS 35,298 in 2018, representing a negative growth rate of approximately 70 percent between the two periods. This business unit also represents another profitable venture for OBs, although average profit margins declined by approximately 2 percent (from 2.6 percent in 2017 to 0.6 percent in 2018). This could be partly attributed to Government of Ghana input subsidies to promote the planting for food and job policy.

While 152 OBs prefinanced agricultural inputs for 81,950 OGs in 2017 (average of 539 OGs per OB), 145 OBs prefinanced agricultural inputs for 142,573 OGs in 2018 (average of 983 OGs per OB), representing an increase of 74 percent in OBs supply of agricultural input on credit. It is possible that OGs demand for agricultural input on credit may even be higher than the available supply. Fertilizers topped the inputs demanding prefinancing. Over the period, the average cost of prefinanced seeds and fertilizers increased marginally by 1 percent and 7 percent, respectively. However, the average cost of pesticides and other inputs (like knapsack sprayers) declined by 62 percent and 89 percent, respectively. A plausible reason may be that more OGs are realizing the importance of utilizing improved seeds and fertilizers, hence the increased demand for OBs' prefinanced seeds and fertilizers. In general, the average prefinancing costs per OB declined by 40 percent, from GHS 54,348 ($12,077) in 2017 to GHS 32,760 ($7280) in 2018.

The prefinancing of other inputs (for example, knapsack sprayers) and seeds recorded the first GHS 7,664 ($1,703) and second GHS 7,402 ($1,645) highest average mark-up (margin) respectively in 2017. In general, OBs made an average mark-up/profit of GHS 10,094 ($2,243) in 2017, which declined to GHS 2,779 ($618) in 2018, representing a drop-in mark-up/margin of 72 percent. The drop in this figure may be attributed to the timing of the survey, which took place during the off season, when less farming activities take place. It is anticipated that these figures will eventually pick up in 2019.

A total of 127 (2017) and 89 (2018) OBs provided shelling services. Maize dominated the threshing/shelling services provided to OGs, with an OB shelling an average of 1,317 bags (100 kg) of maize per OG in 2017. This increased to 6,045 bags of maize per OG, representing a 359 percent increase in bags of maize shelled. Average operating profits for shelling services increased from GHS 11,481($2,551) in 2017 (with a 58 percent profit margin) to GHS 15,413 ($3,425) in 2018 (with a 33 percent profit margin). Average profit increased by 34 percent over the period. In general, the five identified business units operated by the OBs with business linkages to OGs as beneficiaries of these services are profitable business enterprises, with demand for some services increasing over the period.

Conclusions

This study generally examined the strategic roles that OBs play in the maize and soybean value chains in terms of their agribusiness relationships with smallholder farmers and other actors for the purpose of enhancing and sustaining food and nutrition security within the USAID's ADVANCE project's operational areas in Ghana. This study generally concludes that the OB-OG sustainability model, which is being implemented within the USAID's 5R framework, is yielding anticipated results by providing needed services and market outlets for the smallholder farmer (i.e., the outgrower) connected to the OBs, who are generating adequate profit margins through their investments and business networks created with key value chain actors. Thus, the current OB model shows some degree of sustainability. Specific conclusions pertaining to the 5Rs are below.

Evaluating OB Business Relationships

- 20 OBs (7.5 percent) are female and 4 male OBs (1.5 percent) can be classified as youth (18–29 years).
- The 265 OBs surveyed maintain a wide and diverse network of value chain actors, all OBs (100%) are connected with at least one value chain actor (increased their networks), OBs

increased the number of OG business networks by about 3.5 percent from 2017 to 2018, and also developed stronger business relationships with several value chain actors, positively impacting their agribusiness enterprises.

- The majority of OBs provide tractor services, while few OBs engage in input retailing.
- The number of OBs providing all five services —tractor services, marketing/aggregating, input retailing, prefinanced input, and shelling/threshing services—to OGs declined from 2017 to 2018. However, the supply of input credit (prefinancing) services increased within the same period, by almost 70 percent.
- The majority (70 percent) of OBs perceived the strength of their relationship with various value chain actors as high, while another 71 percent perceived the impact of their relationships on their agribusiness enterprises as high. In terms of gender, a higher rate of female OBs (73%) than male OBs (70%) perceived strength of business connections as high whilst slightly fewer female OBs (70%) than male (71%) view the impact of their linkages on their businesses as high.
- OBs have good business linkages with key value chain actors and OGs, ensuring good prospects and outlook for sustained business.

Role of OBs and Actors in the Value Chain

- The first hypothesis explored in this section—that OBs are employing and engaging with increasing number of people in the community, especially women and youth—does not appear to be supported by the evidence. For all services provided by OBs, the proportion of women and youth in the OG base either stayed constant or declined slightly between 2017 and 2018.
- There is evidence of unmet or growing demand for both tractor services and input credit among OGs; just as there is heightened interest in VSLAs and increasing interest in use of certified seeds and fertilizer by OGs, through knowledge gained from demonstration plots. Thus, the second hypothesis that OBs increasingly provide high quality services (play a diversity of roles) to more smallholder farmers in the community, irrespective of gender or age, and that the demand for OB services is growing may find some support. There are very high levels of retention of diverse OGs by OBs and/ or repeat demand for OBs' services in the project operational areas.
- There is a noticeable decline in OBs' involvement in the provision of threshing and output marketing to OGs.
- OBs provide vital services to a diverse group of OGs, reaching men, women, and youth in relatively stable proportions. The relationships appear successful, with very high rates of OG retention.

Rules that Govern OB Relationships

- The survey data does not support the hypothesis that many more OBs continue to arrange formal transactions under or using written contracts and that this trend is improving various aspects of business operation and profitability. Overall, the proportion of OBs that report use of written contracts in the marketing of their produce remains at roughly 20 percent in 2017, which is lower than 2016 levels.
- The hypothesis that informal rules and social norms are as important and will continue to be as important as formal rules in the OB business model may find some support. More OBs used oral contracts in their marketing arrangements than written contracts; OGs that default may be forgiven by OBs to avoid legal battles and associated 'image issues' that could result from efforts to enforce contracts.
- The non-enforcement of rules and regulations on business documentation, including registration, records, and financial transparency continue to be a disincentive to financing and investment opportunities for community-based OBs. This hypothesis may also find support, though the survey did not investigate non-enforcement of rules by regulatory authorities, there is evidence that OBs do not keep records that promote financial transparency such as audited financial statements.
- While OG default is still an issue, low or poor yields, often associated with weather failures, are the main reasons for reported defaults.

Investing and Leveraging Resources

- The evidence does not support the hypothesis that the top three constraints to growth identified in 2016 (access to finance, logistics and transportation, and outgrower loyalty) will no longer be in the top three identified constraints in 2018 because OBs are leveraging their resources, including social capital. Indeed, the top three constraints to OB growth in 2018 are logistics and transportation, access to finance, and outgrower loyalty.
- The grants study provides evidence to support the hypothesis that the number of OBs investing in their business's growth and innovation is increasing as a result of the introduction of USAID's ADVANCE project's grant system. The grants study of 44 grantee OBs found that 75 percent of them invested part of their revenue accrued from service provisions into additional equipment to support their operations. The OBs invested in equipment including tractors, shellers, rotavators, and rippers. Others include, trailers, boom sprayers, weighing scales, bullock ploughs, tarpaulins, and mechanized irrigation systems
- On the other hand the evidence does not support the hypothesis that the number of OBs accessing financial facilities leveraged on their revenues and business operations are on the rise, contributing to business growth: 23 percent of OBs reported obtaining a loan from a bank or non-bank financial institution in 2018, compared to 29 percent in 2016.
- The majority of OBs continue to be rationed out of the market for loans (formal credit) due to unfavorable interest rates, the difficult process, and other requirements.

Results: OB Business Performance

- Some OBs invested in tractors, threshers/shellers, and the renovation or construction of warehouses from 2017 to 2018. In 2017, 44 OBs invested in 57 used or new tractors, and 25 OBs invested in 33 new or used threshers/shellers (representing an average of 1.3 per OB). In 2018, 28 OBs invested in 37 used or new tractors, 20 OBs invested in 24 new or used threshers/shellers (representing an average of 1.2 per OB).
- Investments in tractors and shellers/threshers totaled GHS 1,746,360 ($388,080) for 2017 and GHS 1,402,516 ($311,670) for 2018, representing a 20 percent decline in investment in 2018; 11 OBs spent GHS 215,000 ($47,778) to renovate or construct warehouses. Not all OBs aggregated/marketed commodities, namely, maize, rice, and soybeans, from OGs beyond wat they received as repayment for inputs and services provided on credit. In total, 44 percent of OBs (113 OBs) aggregated/marketed additional commodities in 2017 and 29 percent did in 2018.
- Maize was the most traded commodity by volume (94.7 percent) in 2017, providing the highest average profit margin of 22 percent for OBs, followed by rice and soybeans.
- OBs are improving upon their profit margins for tractor services accompanied with unmet demands: ploughing provided the highest average revenue in both 2017 GHS 47,188 ($10,486) and 2018 GHS 61,581 ($13,685), while tractor repairs was the highest cost component. The average operating profit increased by 90 percent during the period, from an average of GHS 10,084 ($2,241) to GHS 19,177 ($4,262), and an average margin of 14.9 percent (2017) and 19.8 percent (2018) per OB.
- Input retailing is profitable: 45 OBs retailed inputs in 2017, declining to 30 OBs in 2018; retailed inputs include inorganic fertilizers, pesticides, weedicides, improved/hybrid seeds, and knapsack sprayers; average operating profit increased by 24 percent between the two periods.
- Input prefinancing is a profitable business, with increased demand for this service from OGs. Input prefinancing increased by 74 percent during the period; prefinancing demands for fertilizers and improved seeds increased, while demands for pesticides and other inputs (like knapsack sprayers) declined. Generally, the average prefinancing costs per OB declined by 40 percent, from GHS 54,348 ($12,077.33) in 2017 to GHS 32,760 ($7,280) in 2018.
- Other inputs (for example, knapsack sprayers) and seeds provided the highest mark-ups—GHS 7,664 ($1,703.11) and GHS 7,402 ($1,644.89), respectively—in 2017. In general, OBs made an average of GHS 10,094 ($2,243.11) in 2017, which declined to GHS 2,779 ($617.56) in 2018, representing a drop in mark-up/margin of 72 percent.
- Shelling/threshing services is a profitable business for OBs, undertaken by 127 and 89 OBs in 2017 and 2018, respectively. Maize dominated the threshing/shelling services to OGs, with an

OB shelling an average of 1,317 bags (100 kg) of maize in 2017 and 6,045 bags of maize in 2018, representing a 359 percent increase in bags of maize shelled.

- Shelling generated an average operating profit of GHS 11,481($ 2551) in 2017 (with a 58 percent profit margin) and GHS 15,413 ($3,426) in 2018 (with a 33 percent profit margin).
- There is high potential for OBs to increase profits (margins) and sustain business operations through increased demand for services and commitment by OBs to investment in systems that enhance business operations.
- The sustainability of the OB model can be improved if the following issues and concerns are addressed:
    - Only four OBs are categorized as youth.
    - OB-OG operations are highly informal, with little or no relevant recordkeeping. Fewer than 20 percent of OBs use written contracts.
    - Unenforced contracts and the rescheduling of OG repayments to the next year introduce business and financial risks for OBs.
    - Logistics and transportation, access to finance, and outgrower loyalty remain major constraints to outgrower businesses.
- The OB model being implementing is a workable and profitable model that provides services and market outlets for smallholder farmers to ensure sustained business growth.

Recommendations

Evaluating OB Business Relationships

- Deliberate efforts should be directed at identifying and recruiting young entrepreneurs as OBs in catchment communities, by creating economic incentives and facilitating access to credit, to enhance the sustainability of the OB model.

Role of OBs and Actors in the Value Chain

- Project implementers should explore avenues to extend the reach of OB services in the project areas, including possible twinning arrangements between OBs and the government's agricultural mechanization service centers (AMSECs).
- Project implementers should also devise mechanisms for expanding VSLAs and demonstration plots in the project's operational zones.
- Project implementers should investigate the reasons for the decline in OBs' involvement in the provision of threshing and output marketing to OGs in the project's operational zones.

Rules that Govern OB Relationships

- Project implementers should intensify efforts to encourage formalization of OBs' operations, and all OBs should be encouraged to keep records that promote financial transparency such as audited financial statements.
- Project implementers should explore the feasibility of introducing crop insurance products in the OB-OG relationship to provide protection for crop losses.

Investing and Leveraging Resources

- Project implementers should intensify efforts to facilitate linkages between OBs and other value chain actors, including formal financial institutions, with emphasis on creating opportunities for these actors to better understand each other's needs and requirements.
- Project implementers should intensify efforts to improve OBs' knowledge of business operations, especially how to organize operations to enable better leverage on already existing assets.

Results: OB Business Performance

- Project implementers should target deliberate efforts at enrolling interested, passionate, and committed youth to assume the role of an OB, as this may contribute to the sustainability of the model.
- Project implementers must continue to build the capacity of local project partners by providing further training on sound business principles and practices that will promote the long-term health of OB enterprises.

- Project implementers should support OBs to expand their input credit schemes to OGs by facilitating OBs' access to credit.
- Project implementers must work with OBs to develop total quality management systems in all the five business units—tractor services, marketing/aggregating, input retailing, input prefinancing, and shelling/threshing services—that will sustain and enhance business operations.

1. INTRODUCTION

1.1 Background/Brief Program Description, Context, and Rationale

The USAID-funded Agricultural Development and Value Chain Enhancement project (USAID's ADVANCE project) works to increase the competitiveness of agricultural value chains in northern Ghana to foster economic growth and reduce poverty among smallholder farmers and the population at large, in line with USAID Ghana's Feed the Future (FtF) strategy. This study evaluates the sustainability of outgrower (OG) businesses, which serve as a key focus on the project's inclusive growth strategy.

The project's approach is to increase productivity, promote private enterprise development and investment, and ensure that benefits are realized by vulnerable populations, including women, children, and people with physical challenges. The project adopts a comprehensive value chain approach, working with input dealers, nucleus farmers, farmer-based organizations (FBOs), aggregators, processors, and end markets. The project reaches almost 130,000 smallholders by increasing their access to mechanization services, production inputs, finance, and markets, leading to improved productivity.

The scope of USAID's ADVANCE project is to improve the maize, rice, and soybean value chains by adopting a facilitative approach to link smallholder farmers to markets, finance, inputs, equipment, and information through larger commercial farmers and traders who have the capacity and incentive to invest in smallholder production.

Although Ghana has the capacity to produce adequate maize and a large proportion of its soybean requirements, processors import both commodities to feed their factories because of unreliable supply and uncertain quality in country. The project developed the outgrower business model (OB model) to link smallholder farmers (the project's target beneficiaries) to formal markets, especially those that import grains. Therefore, the OBs link smallholders with formal markets and markets to the production source.

Outgrower business owners are usually commercial farmers or aggregators who are willing to provide services to smallholder farmers and aggregate produce for sale to the formal markets. The project trained prospective OBs using a nine-module training curriculum to ensure that they operate as profitable and sustainable businesses. The OB training curriculum covered the following topics: the concept of value chains, end market trends, competing and cooperating effectively, business and financial planning, outgrower management, marketing skills and management, demonstration farm management, outgrower extension services, tractor operation and maintenance, post-harvest handling and storage, and women's entrepreneurship and leadership.

An OB typically provides mechanization services (plowing/ripping, and shelling), and one or more of the following inputs: certified seeds, fertilizers, agrochemicals, and smallholder training using demonstration sites, among others. OBs also enter into various contracts with buyers (who may prefinance production) to supply agreed quantities of produce within a specified period. The project facilitates linkages between OBs and financial institutions, agro-input companies, and transporters to ensure that they meet the obligations under their contracts with buyers. Since 2014, the project worked with 424 OBs. However, at the time of the study, the project maintained 270 active relationships with OBs.

For this analysis, the boundaries include the commercial farm or trader (the OB), which is key to USAID ADVANCE project's approach to achieving development impact.

The history and conditions in which USAID's ADVANCE project came into effect presented both challenges and opportunities. In 2009, maize, rice, and soybean farmers in northern Ghana traditionally operated in a closed system, primarily selling to local market traders who sold to fractured markets prone to gluts. Farmers achieved extremely low baseline yields per hectare (maize: 1.6 MT/ha rice: 1.4 MT/ha, soybean: 0.8 MT/ha), a reflection of limited use of technologies and best practices. Moreover, large private sector firms showed negligible interest in expanding to the north, due to the general lack of leading firms and little coordinated supply base to contract.

On the opportunity-side, three enabling factors provided the catalyst for development of the OB model:

1. Larger tracts of available land in the north, where a set of mid-sized, semi-commercial farmers were established.
2. Growing practice of in-kind bartering for tractor services between larger farmers and smallholders, as larger farms sought to gain additional incomes from capital expenditure (capex) investments.
3. Ghana's broader economic transformation, in which growing urbanization and an emerging middle class demanded more animal-sourced protein (largely poultry) and processed foods. This led to the growth and emergence of large processors in the south, placing a premium on improved quality, efficiency, and reliability of supply.

USAID's ADVANCE project successfully leveraged these dynamics to shape cereal markets to create more inclusive economic opportunities for smallholder maize, rice, and soybean producers. The focus of interventions targeted mid-sized farms and traders to become OBs, in order to influence the collective operation levels of smallholders, private sector companies, and financial institutions. Broadly, OBs served as a bridge between disperse smallholders, enabling access to markets, finance, and technology to increase production and incomes.

The directly measurable development outcomes in areas such as productivity, yield, and gross margins are all well-documented, and verified results are collected and validated through the project's monitoring and evaluation (M&E) systems. There is a need to go a step further than directly measurable results in evaluating development impact. In its Local Systems Framework, USAID considers systemic change to be significant because of the belief that deeper-rooted change will not be easily reversed, and therefore development impacts are more likely to be sustained. A further challenge of market systems programs such as USAID's ADVANCE project is that many benefits are likely to be not directly measurable.

1.2 Purpose and Expected Use of the Study

The purpose of the study is to establish sustainable and inclusive value chains by facilitating the development of OBs, who link smallholders to markets, inputs, and services, including finance and mechanization. In so doing, the study will document the contribution of USAID's ADVANCE project in helping establish sustained agricultural value chain networks to make the chain sustainable, with the OB as the pivot. The assessment seeks to learn the effectiveness of adopted strategies in improving OBs' operations and the support they provide to OGs. The study generally seeks to examine the strategic roles that OBs in the various identified commodities value chains play in their agribusiness relationships with smallholder OGs and other actors, in enhancing and sustaining food and nutrition security within the project's operational areas in Ghana. This study will expand on the 2016 study, with a more intensive modeling component, particularly in the "results" section of the report, which will discuss revenue and profit. The reason this study reports much of the data from the 2016 study is to help USAID's ADVANCE project understand how the OB model evolved over time, which is the project's most powerful tool to make a case for sustainability.

1.3 Study Objectives

The study also assessed the following objectives, including gender- and youth-specific objectives:

1. Understand the development and current status of the business and social relationships of the OB, and how they interact to impact business operations
2. Capture the landscape of actors within the OB supply chain and document their roles, especially those of women and youth, in terms of nature, quality, and evolution over time
3. Assess how the presence or otherwise of formal and informal rules, as well as social norms, affect the behavior of actors and impact on business operation and profitability
4. Establish the resources generally available to an OB, and the extent to which OBs access or leverage resources for business operation and profitability
5. Determine the sustainability of the OB through an analysis of business results and business and social relations/networks, including current and emerging risks and opportunities related to business operations and performance.

The study used USAID's 5R framework[2] to analyze and evaluate OB sustainability, as was done in 2016. The 5 Rs are:

- **Resources:** Local systems transform resources—such as budgetary allocations or raw materials or inputs—into outputs.
- **Roles:** Most local systems involve a number of actors who take on various defined roles: producer, consumer, funder, and advocate.
- **Relationships:** Relationships refer to the types of interactions that occur between actors playing roles, and can be characterized along several dimensions, including formal to informal, strong to weak, mutual to one-sided, cooperative to adversarial, and productive to destructive.
- **Rules:** An important feature of local systems is the set of rules that govern them. These rules define or assign roles, determine the nature of relationships between actors, and establish the terms of access to the resources on which the system depends.
- **Results:** The concept of "results" is expanded to include measures of the overall strength of the local system, as well as traditional outputs and outcomes.

Subsequently, the study tested the following hypotheses around the 5Rs, as presented below:

Section 1: Evaluating OB relationships (quantity, quality, and evolution over time)

1. OBs developed more diverse and stronger relationships with value chain actors, irrespective of gender and age, which improved and continue to improve business operations, profitability, and growth of other actors.
2. As community leaders, OBs have social relations with community members that impact on their business performance and operation.
3. OBs who are linked to multiple buyers will have a higher profit.

Section 2: Roles of OBs and actors in the value chain (nature, quality, and evolution over time)

1. OBs employ and engage with an increasing number of people in the community, especially women and youth
2. OBs increasingly provide high-quality services to a greater number of smallholder farmers in the community, irrespective of gender or age, and the demand for services is growing.

Section 3: Rules that govern OBs' relationships

1. Many OBs continue to arrange formal transactions using written contracts, a trend that improves various aspects of business operations and profitability.
2. Which informal rules and social norms favor of the growth of the OB model and which ones do not?
3. The lack of enforcement of rules and regulations concerning business documentation, including registration, recordkeeping, and financial transparency, continue to act as disincentives to financing and investment opportunities in community-based OBs.

[2] https://usaidlearninglab.org/sites/default/files/resource/files/5rs_technVAAl_note_ver_2_1_final.pdf

Section 4: Leveraging Resources

1. The top three constraints to growth identified in 2016 (access to finance, logistics and transportation, outgrower loyalty) will no longer be in the top three constraints identified in 2018 because OBs are leveraging their resources, including social capital.
2. The number of OBs investing in equipment for their operations is increasing as a result of the introduction of the project's grant system.
3. The number of OBs accessing financial facilities leveraged on their revenues and business operations are on the rise, contributing to business growth.

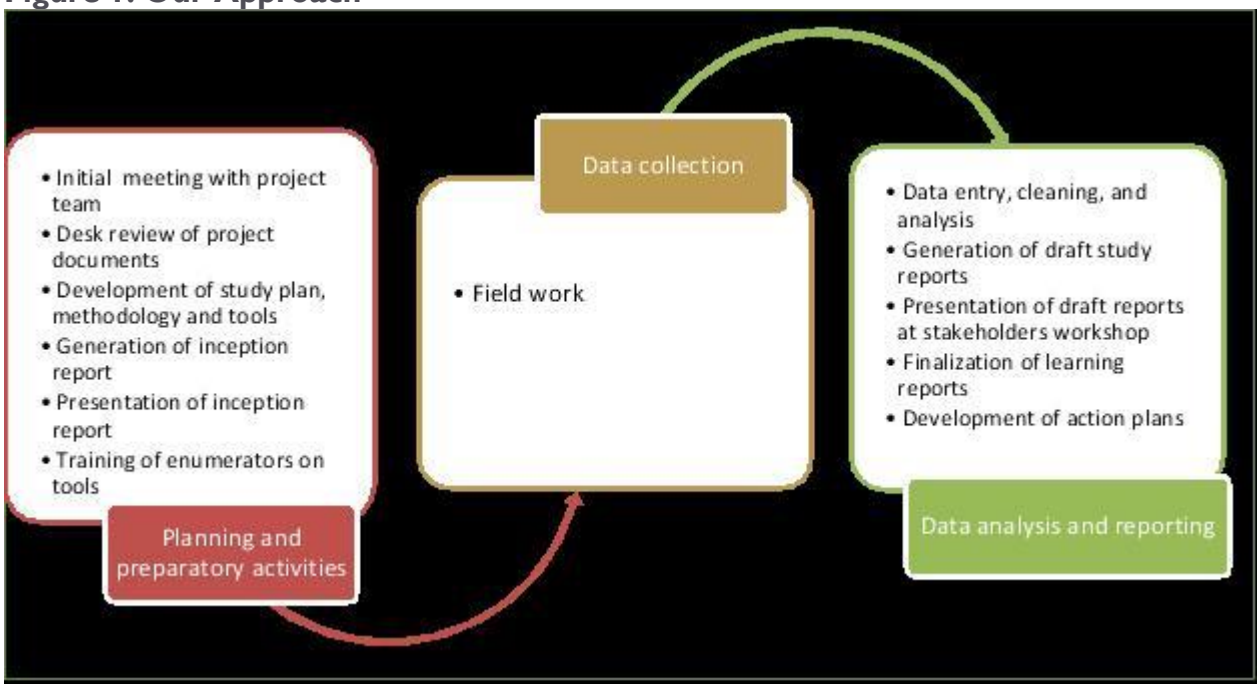
Section 5: OB results

1. The general trend of operational and financial results supports the operational and financial viability and sustainability of OBs and outgrowers.
2. OBs are investing in operational and financial records, and basing annual planning on the results, to ensure sustainability and profitability will be greater in 2018 than in 2016.

2. METHODOLOGY AND DATA COLLECTION TECHNIQUES

The study involved both desk (secondary) and field (primary) research. The team conducted an initial and extensive review of reports, a literature review, and research to assess the sustainability of the OB model service provision and the effectiveness and efficiency of OB networks in engaging other actors in the value chains. Field work complimented the literature review to collect the required data. The research study consisted of three different stages: planning and preparatory activities, data collection, and data analysis and report finalization. Figure 1 presents the study's approach.

Figure 1: Our Approach



2.1 Stage 1 - Planning and Preparatory Activities

Proper planning and preparation is essential for the successful delivery of any project, regardless of its size. Improper or the lack of project planning is a recipe for disaster. The failure of any project, regardless of its size or dimension, can usually be traced to a lack of effective planning. Therefore, Proven Ag

Solutions deployed a highly competent and seasoned team with experience spanning more than 35 years to develop a well-thought-out plan that underpinned the project's successful delivery. During planning meetings, deliberations ensured the identification of appropriate answers to the 5W questions (what, where, when, who, and why) and how. At this stage, Proven Ag Solutions identified activities to deliver the project objectives, allocated work load, defined responsibilities, and articulated views how to map out a broad strategic approach to ensure effective service delivery to the client.

2.1.1 SAMPLE FIELD SURVEILLANCE OF STUDY LOCATIONS, TARGET COMMUNITIES AND RESPONDENTS

The USAID's ADVANCE project included 424 OBs (n = 424). At the time of the 2018 survey, 96 OBs were no longer active, and 58 OBs were unavailable during the survey period. This resulted in a sample population of 270 OBs scheduled to participate in the survey. During the survey, 5 OBs declined to participate, resulting in a final surveyed sample size of 265 OBs. The survey results helped determine the profitability and sustainability of the OB-OG relationship, supplemented with qualitative data collected during focus group discussions (FGDs) and key informant interviews.

2.1.2 SURVEY INSTRUMENTS

The team collected qualitative data using semi-structured questionnaires for in-depth interviews and a guide for FGDs. Field staff digitally collected survey data using the DataWinners software administered on tablets. However, field staff carried paper copies of the questionnaire as back-ups. Field staff conducted key informant interviews and FGDs at locations convenient to the respondents that could ensure confidentiality of the proceedings. Field staff digitally recorded all conversations and took field notes to complement the digital transcripts. The research team subsequently transcribed the digital recordings.

2.1.3 SURVEY QUESTIONNAIRE DEVELOPMENT

The team developed draft data collection tools based on inputs from the documents reviewed and the objectives and hypotheses outlined in the terms of reference. The team designed different data collection tools for discrete stakeholders, including FGD guides (smallholder groups), key informant interview guides for project staff, and identified institutional partners. The team presented data collection plans were organized thematically to measure the project's relevance, efficiency, effectiveness, impact, sustainability, and the external utility of the project. Proven Ag Solutions submitted the draft questionnaires to ACDI/VOCA for review and incorporated their feedback to finalize the documents. The team later field tested the questionnaires to ensure they were understandable and collected the required information.

2.1.4 HARMONIZATION OF THE QUESTIONNAIRES

USAID's ADVANCE project organized a meeting of all the consultants for the five studies to harmonize the various tools and questionnaires into a single elaborate one. Similar questions were removed to ensure the enumerators did not repeatedly ask the respondents the same questions during the data collection process. Meeting participants also discussed the training of enumerators, pre-testing of questionnaires, and field data collection plans.

2.1.5 TRAINING OF ENUMERATORS

An orientation and training workshop for all the enumerators involved in the field work preceded the information gathering exercise, enabling the enumerators to understand the general and specific objectives of the exercise for effective information gathering and delivery. The USAID's ADVANCE project M&E team recruited the enumerators and organized their training.

2.1.6 TESTING OF HARMONIZED QUESTIONNAIRE

The team pretested, validated, and finalized the harmonized questionnaire for field data collection. All trained enumerators and consultants participated in this exercise to ensure uniformity and conformity.

2.2 Stage 2 - Data Collection

Data collection commenced after pretesting the data collection tool and providing all materials and equipment to enumerators. In addition to the enumerators' data collection, the Proven Ag Solutions team also conducted a number of FGDs with smallholder groups and community members in the small towns targeted under the project, and conducted key informant interviews with project staff, OBs, staff of the Ministry of Food and Agriculture (MoFA) and the District Agricultural Development Unit (DADU), and other identified respondents. Field staff reached out to sampling units in advance of the research exercise to ensure key participants made time for the evaluation team. USAID's ADVANCE project paid for all enumerators and data collection activities, as agreed during the inception meeting.

2.2.1 QUALITY CONTROL

Team members and enumerators met for regular debriefing meetings to discuss problems faced when administering the survey. Supervisory team members vetted completed questionnaires. The ACDI/VOCA M&E team reviewed data on a daily basis, and field staff resolved queries before moving to the next study community.

2.3 Stage 3 - Data Analysis and Reporting

2.3.1 DATA CLEANING AND ANALYSIS

Once enumerators completed qualitative data collection in the field, the team cleaned and analyzed the data, and shared the analyzed data with ACDI/VOCA for review before commencing the report writing. The team completed data analysis using well-established quantitative statistical tools/methods, including SPSS and Excel to compute descriptive statistics such as frequency, counts, scores, percentages, arithmetic means, and cross tabulations.

2.3.2 PREPARATION OF DRAFT RESEARCH REPORT

Proven Ag Solutions developed the draft research report based on the data collected from the field and submitted the draft to the USAID's ADVANCE project management team.

2.3.3 PRESENTATION OF DRAFT REPORT AT STAKEHOLDERS WORKSHOP

A Microsoft PowerPoint presentation of the Research Report highlighting key findings, conclusions, recommendations, and lessons learned will be developed to share at a stakeholder's workshop. Proven Ag Solutions will submit the slides to the project management team before the workshop, who will facilitate the logistics of the workshop.

2.3.4 FINALIZATION OF RESEARCH REPORT AND DEVELOPMENT OF ACTION PLANS

The team incorporated the project management team's comments on the draft research report into the final research report and submitted the final research report in electronic format.

2.3.5 STUDY

Limitations

This study comes with some data challenges or limitations that need to be highlighted. Primarily, the study utilized qualitative data collected from the administration of questionnaires by enumerators who were trained jointly by the project and the consultants and were used for four different studies. Some variables had missing data due to the extensiveness of the questionnaires. Hence, the team reduced the

sample size of some affected variables (due to missing data, inconsistent data, or outliers) during the data cleaning process. In some instances where the sample size resulting from the cleaned data was very small and inconsistent with current trends, the team used data from the project's database to support or validate the subject of discussion.

3. MAIN FINDINGS

This chapter presents the key findings OF the November 2018 field data collected from A questionnaire administered to OBs regarding their general operations in terms of their business network relationships with OGs, their roles, the roles of other actors within the value chain, the set of rules that govern their business operations and relationships, how effectively OBs leverage available resources at their disposal, and the extent of business performance that generates desired results for sustained performance. Unless otherwise stated, all information presented here derives from this survey

3.1 General Background

This report's results analyze data collected from 265 OBs. Field staff conducted the OB sustainability survey in 63 districts in five regions (**Error! Reference source not found.**) The highest number of respondents came from 18 districts in the Northern Region, while the lowest number of respondents came from 3 districts in the Ashanti Region.

Table 3.1. Sample distribution of respondents (OBs)

No.	Region	No. of districts per region	No. of respondents			Percent (%)
			No. of Men	No. of Women	Total	
1	Ashanti	3	11	0	11	4.2
2	Brong Ahafo	15	36	6	42	15.8
3	Northern	18	84	4	88	33.2
4	Upper East	15	64	8	72	27.2
5	Upper West	12	50	2	52	19.6
	Total	63	245	20	265	100.0

Source: Survey data, 2018

Only 20 (7.5 percent) of the OBs are women, suggesting the dominance of men in the OB model, probably due to factors such as the rigor, time-consuming nature, and relatively huge capital injection into the business as an OB. Survey data suggest that, on average, OBs have been operating for seven years (ranging from one to 41 years and with a mode of four years[3]). The average age of an OB is 50 years (ranging from 24 years to 80 years and with a mode of 45 years). Interestingly, the survey reveals that only four (1.5 percent) OBs, who are all men, can be classified as youth (18–29 years). About 21 percent (59 OBs) are over 60 years, while the remaining 77 percent (205 OBs) fall within the 30–59 age group. Observing that the majority (77%) constitutes a larger segment of the economically active population (30-60 years) of OBs give some confidence to the system's ability to sustain the relationships established. Based on the perceptions of OBs interviewed, 92 percent of the OBs have at least 1 percent youth in their OB base (**Error! Reference source not found.**). For example, about a third (33 percent) of the OBs indicated that over 40 percent of their business linkages/transactions were with youth.

[3] The USAID's ADVANCE project's database indicates that the OB sustainability model has been operating for four years (commenced in 2014) at the time of the survey. This suggests that some OBs responded by indicating the total number of years they have been farming or rendering services to farmers.

3.2 Evaluating OB Relationships

This section presents the findings from the 2018 OB sustainability survey that assesses the sustainability of the OB model, and considers two kinds of relationships. The first relationship is between OBs and value chain actors (excluding OGs). These relationships fall in five different arenas, namely, advisory/extension, buying/selling, finance, market information, and any other relationship that may ensue through their connections. The second is the OB-OG relationship. The study generally finds a strong and impactful OB-OG business relationships that encourages business health and sustainability. OBs connected well with relevant value chain actors, which has the potential to reduce the financial risk of OBs and also enhance the sustainability of their respective enterprises.

3.2.1 NETWORK OF RELATIONSHIPS OF OBS

All 265 OBs (100 percent) had at least one linkage with a value chain actor, while other OBs connected with several. In 2016, 83 percent of OBs (165 out of 198) had a significant linkage to a government or private sector actor for their business. While the 2016 report mentioned an average of 2.4 actors linked to an OB (ranging from 0 to 10 linked actors per OB), the 2018 survey found an average of three actors per OB, with a minimum of one actor linkage per OB and a maximum of 11 (Table 3.1). Thus, OBs expanded their networks from 2016 to 2018, reflecting progress towards business sustainability. OBs networked with a wide and diverse range of actors in 2018, ranging from business connections with financial institutions, agro-input dealers, distributors/wholesalers, buyers (local and international), government agencies, other OBs (i.e., the OB networks), consultants/advisors, NGOs, and donor projects.

As shown in Table 3.2, the majority (56 percent) of OBs networked with one actor over the past one year, while one OB for instance linked to 11 actors within the same period.

Table 3.2. Number of OBs and extent of actor network linkages

No. of actor networks/linkages	No. of OBs linked (frequency)	Percent (%)
1	147	55.7
2	54	20.5
3	33	12.5
4	11	4.1
5	9	3.4
6	6	2.2
7	1	0.4
9	1	0.4
10	1	0.4
11	1	0.4
	264	**100.0**

Source: Survey data, 2018

For example, the OB with 10 business networks linked with five business types: an aggregator, buyer, and food processor (i.e., Premium Foods Limited for selling and financing of activities), government agencies (such as MoFA, GCC, GCX, and Ghana Exim Bank, for market information, business advisory and extension services, and business financing issues), a retail animal feed input supplier (such Agricare), a service provider (such as the National Farmers and Fishermen Award Winners Association of Ghana, an advocacy group for the welfare of farmers and fishermen), and NGOs or donor projects (namely, USAID's ADVANCE project, the World Food Program [WFP], and the German Corporation for International Cooperation [GIZ]).

As shown in **Error! Reference source not found.** about 89 percent (235 OBs) mentioned having business relationships with value chain actors involved in buying/selling or aggregation activities. Advisory/extension services was the second most common business relationship mentioned by OBs, with almost 89 percent (235 OBs) maintaining these kind of linkages. A total of 94 OBs (35 percent) reported linkages to financial institutions. The fact that close to 90 percent of OBs linked to actors through buying and selling, and 35 percent of OBs linked to institutions when seeking financial support is quite encouraging for business growth and performance.

Table 3.3. Nature of OB relationships with value chain actors

Nature of Relationship	No.	Percent	Percent of OBs
Advisory/extension	235	33.81	88.68
Buy/sell	237	34.10	89.43
Finance	94	13.53	35.47
Market info	71	10.22	26.79
Other	58	8.35	21.89
	695	100.00	

Source: Survey data, 2018 Note: Multiple response table

Another area of focus is the number of actors connected to OBs. Table 3.4 shows the number of businesses or actors with whom OBs maintained connections. For example, most OBs connected with an NGO or donor projects (27 percent), distributers/wholesalers (13 percent), service providers (10 percent), food processors (8 percent), aggregators (6 percent), retail input dealers (5 percent), OB networks (4 percent), and banks (4 percent). The following are some details of OB linkages with a number of actors: 29 OBs connected with 16 aggregators, 65 OBs connected with 35 distributers, 43 OBs linked up with 15 food processes, 25 OBs connected with 25 retail input dealers, 20 OBs connected with 10 banks, 11 OBs linked up with seven non-banking financial institutions (NBFI), and 140 OBs connected with 33 NGOs or donor partner projects. The linkages of three OBs to seed growers and five OBs to three equipment manufacturers (**Error! Reference source not found.**) are noteworthy. These businesses may be considered as key enablers, in some respect, for the continuous provision and therefore sustainability of OBs operations.

Table 3.4. OB linkages with businesses/actors

Business/Actor type	No. of OBs linked	% linkage	No. of linked business types	Business/Actor type	No. of OBs linked	% linkage	No. of linked business types
Aggregators	29	5.62	16	NGO or donor project	140	27.13	33
Bank	20	3.88	10	OB network	20	3.88	9
Consultant, advisor	9	1.74	6	Other	37	7.17	10
Distributor/ wholesaler	65	12.60	35	Other buyer	13	2.52	11
Equipment manufacturer	5	0.97	3	Professional association	2	0.39	3
Food processor	43	8.33	15	Retail input supplier	25	4.84	25
Government agency	32	6.20	6	Seed grower	3	0.58	3
Livestock (incl. feed)	5	0.97	4	Service provider	53	10.27	28
Multinational buyer	3	0.58	3	Social group or colleague	1	0.19	1

NBFI (MFI, CU, RB)	11	2.13	7	TOTAL	516	100.00	

Source: Survey data, 2018 Note: Multiple response table

Based on the survey findings, OBs are connected to the following key actors/players:

- Aggregators (buy/sell, advisory/extension, finance): Market Women (6), Agricare (5), Premium Foods (4), Avnash (2), and Gundaa Produce Company (1).
- Distributers/wholesalers (buy/sell, finance, advisory/extension): Agricare (12), Premium Foods (6), Yara (6), School Feeding Programme (3), Adom Farms (2), 18th April (2), Avnash (2), and poultry farmers (2).
- Retail input suppliers (buy/sell, finance, advisory/extension): Agricare (3), 18th April (2), Antica (2), RMG (2), Ribufa Enterprise (1), and Ayamba Yelmangli Company (1).
- Food processor (buy/sell): Agricare (18), Premium Foods (6), Avnash (4), and Ghana Nuts (3).
- Banks & NBFI (finance): GCB (4), ADB (2), Naara Rural Bank (3), Sinapi Aba (3), Bessfa Rural Bank (2), Ejuraman Rural Bank (3), Kintampo Rural Bank (2), and Opportunity Savings and Loan Limited (2).
- NGO or donor project (advisory/extension): USAID's ADVANCE project (76), ACDEP (6), GIZ (6), Technoserv (5), IFDC (4), MIDA (3), WFP (3), World Vision (2), ADRA (2), AGRA (1), FINGAP (2), and MADE (1).
- OB network (involved with all five business relationships): ADVANCE (12), Bawum Enterprise (1), Kukunasor Women Group (1), Nandanbaaya Farms (1), Trust Agro (1), OCP Africa (1), Mbanto Farm (1), and Ribufa Enterprise (1).
- Equipment manufacturer (buy/sell): AGROMITE (2), Pulima Shellers (2), and PDL (1).
- Seed growers (buy/sell): CRI (1), MOFA (1), and Ribufa Enterprise (1)
- Government agency (advisory/extension): MOFA (28), Ghana Exim Bank (1), GCX (1), GCC (1), and Youth Training Institute (1).

In general, the key players connected to the highest number of OBs are the following: USAID's ADVANCE project (105 OBs), Agricare (51 OBs), MOFA (40 OBs), Premium Foods (17 OBs), Avnash (10 OBs), Yara (6 OBs), GIZ (6 OBs), ACDEP (6 OBs), Technoserve (5 OBs), Sinapi Aba (5 OBs), Ribufa Enterprise (5 OBs), Ghana Nuts (4 OBs), and GCB (4 OBs). presents some key actors and the number of OB connections they maintain.

When expressing their opinions about the strength and impact of their business links with all actors, and based on 483 responses from the 265 OBs (suggesting that an OB connected with an average of two actors), the majority (70 percent) of OB responses (337 of 483), perceive the strength of their connections with various value chain actors as high, 25 percent (123 OB responses) view it as medium, and only 5 percent (23 OB responses) perceive the strength of their connections as low. When disaggregated into sex, there were 33 female OB responses (7%) and 450 male OB responses. About 73% (24 OB female responses) perceived the strength of their links as high whilst 27% (9 female OB responses) rank the strength as medium. For male OBs, 70% (313 responses) perceive strength of their links as high and 5% (23 responses) see it as low. In general, it appears more female OBs rank high the strength of the connections than their male counterparts. Furthermore, 71 percent (345 OB responses) perceive the impact of their connections as high, 25 percent (123 OB responses) rated the impact as medium, and 4 percent (18 OB responses) view the impact of such links on their business as low. Considering gender disaggregation, 71% of male OBs (319 responses) perceive higher impact on their businesses compared to 70% of female OB (23 responses). The continuous business connections with key actors will remain relevant for the growth and sustainability of OB businesses.

It is worth noting that not all OBs marketed commodities from OGs, namely maize, rice, and soybean. As will be mentioned later in this report (see section 3.7), 113 OBs (44 percent) aggregated/marketed products in 2017, and 29 percent OBs did so in 2018. [4]

Table 3.5. Business types with linkages/relationships to OBs

Linkages of OBs to Value Chain Actors							
Financial Institutions (Banks)	# of OBs	Financial Institutions (NBFI)	# of OBs	Retail Input Suppliers	# of OBs	Retail Input Suppliers	# of OBs
ADB	2	Bangmarugu Rural Bank	1	18th April	2	MoFA	1
Bessfa Rural Bank	2	Bayport Financial Services	1	Agricare	3	Monibu Enterprise	1
Blifaco	1	Ejuraman Rural Bank	3	Alhaji Store	1	Premium Foods	1
Boco Bank	2	Kintampo Rural Bank	2	Antica	2	Ribufa Enterprise	1
Builsa Community Bank	1	Opportunity Savings and Loan, Ltd.	2	Ayamba Yelmangli Company, Limited	1	RMG	2
GCB	4	Techiman Area Teachers Credit Union	1	Deborah Enterprise	1	Sadia Abdulah	1
Naara Rural Bank	3	Tizaa Rural Bank	1	Doctor Ent	1	Shinkafa Buni	1
Opportunity Savings and Loan, Ltd	1		11	Joe Hill	1	Simple Prince	1
Sinapi Aba	3			Latest Enterprise	1	Trade Aid	1
Tule Bank	1			Masara Narziki	1		25
	20			MODAP	1		

Buyers/aggregators	# of OBs	Buyers/aggregators	# of OBs	Buyers/aggregators	# of OBs	Buyers/aggregators	# of OBs
Agric Access	1	Donor Farm	1	MoFA	1	Yadent	1
Agricare	9	Gundaa Produce Company	1	Open market	2	Seashell	1
Agrisolve Company	1	Kantan Enterprise	1	Other aggregators	1	GHANA Poultry Project (GPP)	1
Anoshe Women Group	1	Market Women	7	Premium Foods	5	Vestor Oils	1
Avnash	2	Masara Narziki	1	Savana Marketing Company	1	Shinkafa Buni	1
Ribufa Enterprise	1	Ghana Nuts	1	Techiman Man	1	International Finance Corporation (IFC)	1

[4] Buying of commodities was ongoing at the time data collection in October. Also, OBs are not obliged to buy produce from their outgrowers beyond the contractual repayment volumes. This allows farmers enough space to bargain competively for the excess produce.

Buyers/aggregators	# of OBs	Buyers/aggregators	# of OBs	Buyers/aggregators	# of OBs	Buyers/aggregators	# of OBs
B5 company	1						45
Government/others	# of OBs	Seed growers	# of OBs	Distributor/wholesaler	# of OBs	Food processors	# of OBs
GCC	1	CRI	1	Poultry farmers	2	Avnash	4
GCX	1	MoFA	1	Premium Foods	6	Afariwa Farms	1
Ghana Exim Bank	1	Ribufa Enterprise	1	Bonzali Women	1	Agricare	18
MoFA	28		3	Boris B Farm	1	Agricerf	1
Youth Training Institute	1			Royal Golden Eggs	1	Elmo Ghana, Ltd	1
	32			Yara	6	Commodities exchanges	1
Distributor/wholesaler	# of OBs	Distributor/wholesaler	# of OBs	School feeding program	3	Ghana Nuts	3
18th April	2	Chemico	1	IM Unity Farm	1	Gideon Farms	1
Adom Farms	2	Dizengoff	1	Avnash	2	Premium Foods	6
Aggregation	1	Duna Farms	1	Antica	1	Royal Danimark	1
Agricare	12	Ejura Women	1	Songtaalanda Yipala	1	SARI	1
Agyaku Agro Chemicals, Ltd	1	Ikanji Ent	1	Soybean supplier (Somali iddi)	1	Shinkafa Buni	2
Ajura Women for Rice Processes	1	Kakyere Badu	1	Suhuyini Company, Ltd	1	Trade Aid	1
Akati Farms	1	Kwaku Oppong	1	Techiman Women	1	Vestor Oils	1
Rice and maize vendor (Mohammed Alhassan)	1	Liventist Training College	2	Input dealer (Japan for expertise)	1	OXFAM, CARE International, Presby Agric Station	1
Alidu Productions	1	Mr. Fatawu	1	Non	2		43
Boawon Farm	1	Nestlé Ghana	1	Total	65		

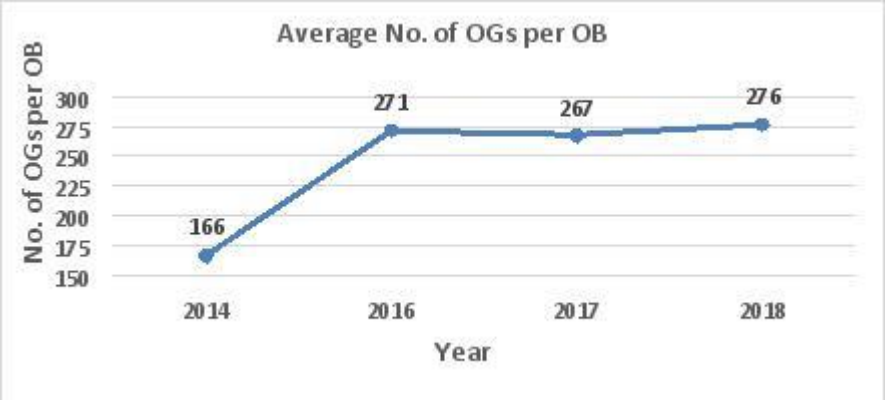
Source: Survey data, 2018

3.3 Relationships between OBs and OGs

3.3.1 GROWTH IN SOCIAL/BUSINESS RELATIONSHIP NETWORKS

The survey shows a 3.5 percent annual growth rate in the OB business network relationship with OGs from 2017 to 2018 (**Error! Reference source not found.**6). For example, the 265 OBs surveyed had a network of 70,684 OGs (2017), which increased to 73,126 OGs (2018). This suggests that one OB is connected to an average of 267 OGs (2017) and 276 OGs (2018), implying an increase in business relations with OGs that is helpful for business growth and sustainability (see Table 3.6 for the trend in the number of OB linkages with OGs). In terms of gender, women constituted 48.3 percent of the OGs in 2017 and 47.1 percent in 2018. While the number of female OGs increased marginally by 0.8 percent over the two years, the number of male OGs increased by 5.9 percent within the same period. This observation reflects the fact that more men engage in agribusiness activities within the project's

operational areas, hence the minimal growth in the number of females OGs linked to OBs. Moreover, the yearly growth in OGs networked with OBs may be an indication of the promising local business environment and the need to leverage OGs' demand for relevant services for enhanced profits. This may also suggest positive social relationships among farming community members and households within OB operational zones. In comparison with 2018 information, the 2016 survey reported OBs growing in number from 166 to 271 between 2014 and 2016, at a compound annual growth rate (CAGR) of 28 percent. Figure 2. Average number of OGs under an OB



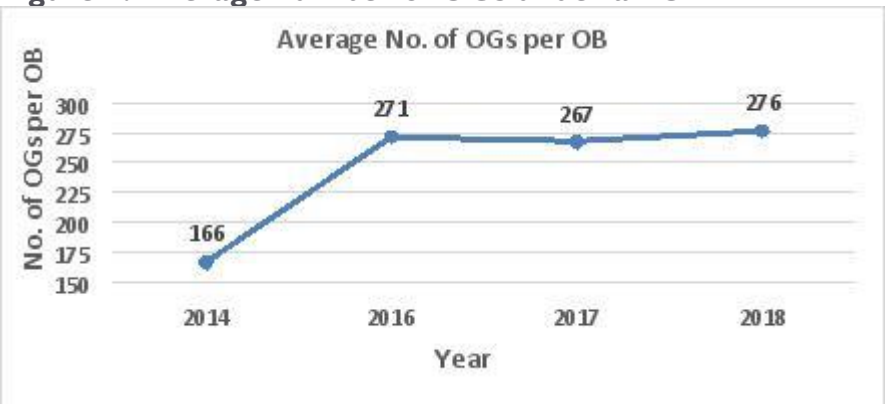
shows this trend, where there seems to be little growth in the number of OGs connected to an OB between 2016 and 2018.

Table 3.6. Number of OGs networked with OBs in 2017 and 2018

Gender of OG	2017	2018	Growth Rate (%)
Men	36,519	38,684	5.9
Women	34,165	34,442	0.8
Total	70,684	73,126	3.5
Average per OB	267	276	

Source: Survey data, 2018

Figure 2. Average number of OGs under an OB



3.3.2 NATURE OF THE RELATIONSHIP

OBs serve as business hubs for OGs, and the nature of their relationships with OGs span across five broad areas, as shown in Table 3.7. The nature of these relationships come in the form of service provision to their respective OGs, with OBs generally providing more than one service to OGs. The 2018 survey data reports that the majority (237 OB responses) are into buying/selling (89.4 percent) and

235 OB responses (88.7 percent), provide advisory/extension services with OGS[5]. The data therefore indicates that OBs provide more than one service to OGs.

Table 3.7. Nature of OB-OG relationship

No.	Nature of Relationship	No. of OBs	%	% of OBs
1	Advisory/Extension	235	33.9	88.7
2	Buy/Sell	237	34.2	89.4
3	Finance	94	13.6	35.5
4	Market Information	71	10.3	26.8
5	Other	55	8.0	20.7
	Total	692	100.0	

Source: Survey data, 2018 Note: Multiple response table

OBs leverage their resources, including their business networks, to provide services to the OGs that will enable them to ultimately purchase farm produce from their network of farmers. This corresponds to the objective of OBs, to earn income and make decent profits by purchasing of farm produce and selling agro-inputs to OGs.

3.3.3 TYPES OF SERVICES OFFERED BY OBS TO OGS

OBs generally provide five categories of service to their OGs: tractor services, pre-financing (input credit), input retailing, shelling/threshing services, output marketing, and extension and training. As shown in **Error! Reference source not found.**, the majority (74 percent) of OBs provide tractor services, while input retailing is the least common of the services provided by OBs (17 percent in 2017) to their OG networks. The few OBs retailing inputs may be an indication of the relatively huge initial capital outlay to commence and expand sales outlets. Therefore, OGs may have few OB input sales points, but may still have access through purchases from other non-OB retail outlets within their reach.

It is also observed that 113 OBs (44% of 634 responses) marketed outputs in 2017 and this declined to 29 OBs (12% of 634 responses) in 2018[6] The survey data indicate that the number of OBs providing services to OGs in their networks declined from 2017 to 2018 for all service types. In addition, the total number of OGs or beneficiary farmers within the OB network that OBs claimed to serve also declined from 2017 to 2018 (although the average number of OGs receiving a particular service from an OB is generally higher than the overall average of 267 OGs per OB in 2017 and 276 OGs per OB in 2018).[7] The only exception is the provision of input credit (prefinancing) to OGs, where the OBs network of farmers needing input credit increased by 70 percent in 2018 (see). The low numbers of OBs that marketed/sold commodities in November 2018 (survey period) can be attributed to off-season period. This explanation may also apply to low volumes of activities during 2018. These numbers are expected to eventually increase as the season picks up in 2019.

The survey also shows a low number of OBs involved in demonstration farms in 2018 compared to 2017. In 2017, input companies provided almost all inputs for demonstration farms, and the project facilitated the inputs. In 2018, OBs had to organize these demonstration farms themselves, and had to contribute substantially with minimal facilitation from the project. This was a test of how the OBs will perform after the project closes.

[5] USAID's ADVANCE project's data indicates that all OBs (100 percent) buy/aggregate from OGs and then sell their commodities to earn profits, and therefore do not keep commodities for themselves.

[6] USAID's ADVANCE project's data indicates that all OBs (100%) buy/aggregate from OGs and then sell their commodities to earn profits and therefore do not keep the commodities for themselves.

[7] The average number of OGs per OB for each service provided (2017/2018): tractor services (315/307); input credit (550/983); shelling (320/244); marketing outputs (143/70).

Table 3.8. Type of service provided by OBs in 2017 and 2018

No.	Type of Service Provision	OBs Providing Services 2017			OBs Providing Services 2018		
		No.	%	No. of Beneficiaries	No.	%	No. of Beneficiaries
1	Tractor services	197	74	62,081	195	74	59,793
2	Pre-financing (input credit)	152	57	83,695	145	55	142,573
3	Input retailing	45	17		30	11	
4	Shelling/threshing services	127	49	40,617	89	35	21,728
5	Output marketing	113	44	16,169	29	12	2,035
6	Extension and training						
	Organize savings group	93	36	1,625	48	19	1,495
	Organize producer groups	41	16	489	27	11	300
	Establish demonstration plots	106	41	54	70	27	32
	Provide market information to suppliers	41	16	41	31	12	1,008
	Mentor other outgrower businesses	62	24	62	36	14	986
	Total (extension & training)	343			212		

Source: Survey data, 2018 Note: Multiple response table

3.3.4 BUSINESS NETWORK RELATIONSHIP CHURN

In spite of the reported growth (3.5 percent) in the number of OGs linked with OBs, the survey data includes some evidence of relationship churning, as reported when OBs reported the estimated proportion of OGs who received services in 2017 that also received services in 2018 (see Table 3.9).

Net business relationship churning, in the project's context, is the sum of the discontinuation (leaving) and/or inclusion (joining) of OGs to the OB-OG relationship, irrespective of the reasons. It is the actual numbers of OGs that leave and/or join the OB-OG connection. What is presented here is a proportion of OBs who expect to retain "all" or "most" of their OGs.

Table 3.9. Same OGs who received services in 2017 and 2018 and projected for 2019

Service	Year		All (95+%)	Most (66+%)	Half (50+%)	Few (33+%)	None (<5%)	Total
Ploughing	2018	No.	103	60	14	19	6	202
		%	38.9	22.6	5.3	7.2	2.3	100.0
	2019	No.	124	46	13	19	63	265
		%	46.7	17.4	4.9	7.2	23.8	100.0
Pre-finance	2018	No.	69	45	15	17	13	159
		%	43.4	28.3	9.4	10.7	8.2	100.0
	2019	No.	79	37	15	0	2	133

		%	59.4	27.8	11.3	0.0	1.5	100.0
Threshing	2018	No.	44	42	19	11	130	246
		%	17.9	17.1	7.7	4.5	52.8	100.0
	2019	No.	64	36	16	8	118	242
		%	26.4	14.9	6.6	3.3	48.8	100.0

Source: Survey data, 2018

Using ploughing services as an example (see Table 3.9), about 62 percent of OBs connected with at least 95 percent ("all") of their OGs and at least 66 percent ("most") of their OGs in 2018. For 2019, about 64 percent of these same OBs (an increase of 4.2 percent) forecast that they will retain these same OGs ("all" and "most") for ploughing services. In other words, more OBs (4.2 percent increment) are expecting not to lose "all" and "most" of their OGs requiring ploughing services. For prefinanced input, 71.7 percent of OBs provided such service to OGs and in 2019, 87.2 percent of these OBs expect to provide the prefinancing service to same OGs (22 percent increase). For threshing services, 35 percent of OBs connected with OGs requiring threshing services and in 2019, 41.3 percent of these OBs expect to retain the OGs (18 percent increase in OBs).

According to the 2018 survey, an average of 56.1 percent of OBs retained their 2017 OGs in 2018, and a higher number of OBs (64.2 percent) forecast retaining same OGs in 2019. This represents a projected increase in the number of OBs to retain the same numbers of OGs of 14.6 percent. In comparison to the 2016 survey, 89 percent of OBs in 2016 retained "all" or "most" of the same OGs they connected with in 2015, and 92 percent of OBs projected that they will retain "all" or "most" of their OGs in 2017. This also represents a projected increase of 3.4 percent. Based on these trends, the 2019 business outlook for OBs providing services to OGs is high, an indication of business confidence that bodes well for business growth opportunities.

In assessing the strength and impact of their business linkages in 2018, the majority (70 percent) of OBs are confident that the strength of their established relationships with OGs is very high, while 71 percent recognize the high impact of their connections on their agribusiness activities. Again, this observation suggests OB confidence in the business network system, a good precursor for business success and sustainability, along with positive operational performance.

When compared to 2016, about 82 percent and 84 percent of OBs perceive an increase in the number and strength of their business networks, respectively (see Table 3.10). However, it is important to further investigate the reasons behind concerns of decreased business performance in terms of numbers and strength of OB networks or linkages.

Table 3.10. Comparisons of business networks between 2016 and 2018

Rating	Number of Business Networks Comparison between 2016 and 2018		Strength of Business Networks Comparison Between 2016 and 2018	
	Frequency	%	Frequency	%
Decreased	7	2.6	7	2.6
Increased	217	81.9	222	83.8
No Change	41	15.5	36	13.6
Total	265	100.0	265	100.0

Source: Survey data, 2018

3.4 Role of OBs and Other Actors in the Value Chain

This section describes the functions and reach of OBs in their dealings with community members, as well as the quality of service delivery. By comparing the situation in 2017 and 2018 with the base situation in 2016, we investigate how OBs' roles shifted over time. This section shows the degree to which OBs provide services to OGs, and how efficiently and effectively they fulfill their role as business managers and operators. It also captures the growth pathway for OBs—how did services develop and overlay over each other—moving from tractor services and input agents to off-takers. It captures the support provided by the project, as well as other factors and opportunities that helped OBs expand their service offerings or portfolios. Our overarching interest is to gauge relational and business health within the OB model using varied indicators.

The two main hypotheses explored in this section are that OBs are employing and engaging with an increasing number of people in the community, especially women and youth, and that OBs increasingly provide high quality services and play diverse roles/functions for more smallholder farmers in the community, irrespective of gender or age, growing the demand for OB services.

3.4.1 SERVICES DELIVERED

The OBs continue in their commercial functions, providing tractors (plowing), input credit, threshing or shelling, and output marketing services. Table 3.11 presents the extent of involvement, the scale of coverage, and the growth in service provision since 2016. OB involvement in tractor services and input credit appear steady between 2016 and 2018; the proportion of OBs offering threshing/ shelling and output marketing services, however, dropped sharply. From 65 percent of OBs offering threshing services in 2016, the proportion dropped to 34.9 percent (out of 255 valid responses) in 2018. The number of valid responses for 2016 is not available. Similarly, the proportion of OBs that purchase farm output from their OGs declined from 76 percent in 2016 to 11.5 percent in 2018. While the cause for the seeming decline in OBs' engagement in threshing and output aggregation is unclear, the timing of the field survey likely plays a role. The survey administration took place in November, around the time of harvest. On average, an OB plowed for 391 clients in 2017 and 387 clients in 2018; the average area plowed per OB was 580 acres in 2017, rising to 746 acres in 2018.

Table 3.11. Distribution of OB services 2016–2018

Services	% Total OBs			Average/OB			Growth rate (%)	
	2016	2017	2018	2016	2017	2018	2016–2017	2017–2018
Tractor (acres)	78	74.3	73.6	314	580	746	85	29
Threshing/ shelling (MT)	65	48.7	34.9	75	-	-	75	359-
Input credit (GHS)	54	57.4	54.7	20,000	46,907.7	61,425.3	135	31
Marketing (MT)	76	43.8	11.5	102	134	-	31	-

Source: Survey data, 2018

The highest growth rate was in the quantity (maize) threshed/shelled per OB between 2017 and 2018, which rose by 359%. This is followed by input credit, in terms of the monetary value of inputs given to OGs on credit in a year, which jumped by 135 percent between 2016 and 2017; over the same period, the growth rate of tractor services (measured in terms of acreages ploughed) was 85 percent. The quantity (maize) shelled/threshed rose by 75% from 2016 to 2017. These are impressive growth rates in services provided by OBs when compared with 14.4 percent and 20 percent for input credit and tractor services, respectively, reported for 2016. The lowest growth rate was for tractor services between 2017 and 2018, which was estimated at 29 percent. This is still quite high compared to any measure of aggregate

economic growth in the Ghanaian economy. These figures provide evidence of expansion in OB service delivery from 2016 to 2018.

Despite the high growth rates in OB tractor service and input credit provision, OGs also indicated that those services are inadequate or in short supply during focus group discussions. OGs at both Mion and Labarega lamented not getting enough or timely tractor services and inputs on credit. Some OGs at Mion are pursuing support to purchase a tractor to supplement services provided by the OBs to farmers in the area. At Labarega, OGs expressed a desire for additional OBs, as their current OB cannot provide the full complement of farm inputs they need.

OBs diversify their operations to foster or enhance business sustainability, especially provision of facilitating services. In 2017, 36 percent of OBs helped organize savings groups, 41 percent established demonstration plots, 24 percent mentored other OG businesses, and 16 percent provided market information to their suppliers. These proportions suggest a slowing pace in the provision of facilitating services compared to 2016, but simultaneously point to some dynamism—mentorship of other OBs and provision of market information to OGs appear to be new services.

As a result of participation in VSLAs, many OGs reported the ability to pay cash for critical farm inputs at the time of share-out. This reduces the need for or overreliance on input credit from OBs; and expands the potential reach of OBs resources to more OGs. As noted in the 2016 survey report, and confirmed during focus group discussions, demonstration plots serve an important convening function. Many OBs learned of the ADVANCE model by participating in demonstration plots and attributed their adoption of improved inputs/technology to participation in various demonstration plots. For example, OGs and members of VSLAs in Labarega (off the Tamale–Yendi road) reported being prepared and willing to borrow for certified seeds and fertilizer because of what they observed and learned through participation in demonstration plots.

In fact, VSLAs and demonstration plots seem to provide a new impetus to smallholder farmers' bid to improve the productivity and sustainability of their farming operations. Farmers in Mion and Labarega emphatically stated that they will do everything necessary to maintain and build on the gains made through VSLAs, which provide a 'big relief,' especially at the time of share-outs. Also, farmers attest to the value of using improved inputs/technology such as certified seed, fertilizers, and recommended plant spacing and population, as on display in demonstration plots. Farmers feel 'empowered' noting that 'farming is profitable and they can sustain the current levels of profitability, given the knowledge acquired from demonstration farms'. OGs report that the critical components to profitable farming are the use of certified maize seed, and Sulphate of Ammonia (SoA). Farmers also shared the various benefits of VSLAs, including the increased ability to afford farm inputs (including fertilizer and certified seeds), enhanced savings habits, women having money to supplement household feeding, relief from stress and pressure due to reduced petty borrowing, increased participation of women in discussions at meetings, and improved social cohesion due to regular and more frequent meetings.

Farmers, who constitute the OG base, are very diverse, including men, women, and youth, as shown in Table 3.11 below.

Table 3.12. Distribution of OB services in 2017 and 2018 by gender

	2017			2018		
	Men	Women	Youth	Men	Women	Youth
Tractor service (plowing)						
N	193	195	177	185	188	175
Average	164	156	91	168	153	90
Total	31,668	30,413	16,065	31,001	28,792	15,714
Tractor service on credit						
N	-	180	181	175	178	163
%	-	59	54	56	52	45

Input credit						
N	-	146	135	-	143	131
%	-	43	34	-	46	33
Shelling/ threshing						
N	125	124	114	70	69	61
Average	140	116	77	141	101	80
Total	17,463	14,355	8,799	9,855	6,963	4,910
Marketing outputs						
N	77	75	68	11	12	11
Average	86	84	49	90	65	25
Total	6,592	6,271	3,306	986	776	273

Source: Survey data, 2018

The average number of OGs receiving tractor services (plowing) per OB in 2017 ranged from 91 youth, to 156 women and 164 men. Similar numbers received the same service in 2018. Among farmers that received tractor services from the OBs in 2017, 59 percent of women and 54 percent of youth received the service on credit. In 2018, the proportions of men, women, and youth that received the service on credit were 56 percent, 52 percent, and 45 percent, respectively.

The proportion of women and youth among recipients of input credit from OBs in 2017 and 2018 are very similar; 43 percent women and 34 percent youth in 2017, compared to 46 percent and 33 percent, respectively, in 2018. Provision of tractor service and input credit appear very steady, as both the number of OBs involved and the average number of service recipients are similar for the two years (2017 and 2018). However, the number of OBs offering either shelling/threshing services or output marketing (buying from OGs) dropped sharply between 2017 and 2018. Among the facilitating services (extension and training), use of demonstration plots is the most prevalent, and although the number of OBs offering the service also dropped in 2018 compared to 2017, it remained the service offered by the most OBs. The average number of service recipients by gender appears fairly stable across 2017 and 2018, for all three services; organizing savings groups, organizing producer groups, and establishing demonstration plots (**Error! Reference source not found.**3**)**.

Table 3.13. Beneficiaries of OBs' extension and training services in 2017 and 2018 by gender

	2017			2018		
	Men	Women	Youth	Men	Women	Youth
Members per savings group						
N	75	86	78	34	41	39
Average	17	18	14	15	16	10
Total	1,243	1,513	1,098	514	674	396
Members per producer group						
N	36	36	32	22	25	24
Average	33	46	22	47	26	24
Total	1,180	1,670	708	1,040	661	580
Beneficiaries of demo plots						
N	99	98	89	64	66	60
Average	87	80	49	76	73	45
Total	8,654	7,846	4,379	4,836	4,841	2,670

Source: Survey data, 2018

On average, an OB had 267 OGs in 2017 compared to 276 OGs in 2018. Across OBs, the percentage of OGs that are youth (18–29 years) is given in Table 3.14 below.

Table 3.14. Distribution of youth in outgrower base of OBs

Percent of Outgrowers that are Youth	% OBs
None	8
0–1% of outgrower farmers are youth	9
1–10% of outgrower farmers are youth	22
10–20% of outgrower farmers are youth	13
20–30% of outgrower farmers are youth	15
30–40% of outgrower farmers are youth	33
Total	100

Source: Survey data, 2018

For more than 80 percent of OBs, at least 10 percent of their OG base is youth; indeed, 33 percent of OBs have up to 40 percent youth OG farmers in their base. The OB model may contribute substantially to addressing a critical national challenge—rising youth unemployment. Note that apart from the OGs, OBs also provide other opportunities such as the village level agro-input agents (VAAs) and safe spraying service providers (SSPs).

3.4.2 SERVICE QUALITY AND IMPROVING BUSINESS OPERATIONS

The OB-OG relationship is a kind of repeated principal-agent game (rather than a one-off interaction). Hence, its stability and sustainability are very much dependent on the quality of service. Repeat demand or purchase and repayment rates for services obtained on credit are important for gauging the health of the relationship. In 2018, 51 percent of OBs provided tractor services for 95 percent or more of clients who used the service in 2017; 47 percent of OBs plan to repeat this in 2019 (see Table 3.15). For input credit in 2018, 71 percent of OBs provided service to at least 66 percent of OGs they prefinanced in 2017, and 80 percent of OBs plan to maintain service to these clients in 2019. The more OGs an OB carries over from one period to the next, the better for both parties. This is also a sign of a good and healthy relationship that is mutually beneficial.

Table 3.15. Proportion of 2017 farmers that also received services in 2018 and forecasts for 2019

	Tractor		Threshing/ Shelling		Input Credit	
	2018	2019	2018	2019	2018	2019
All (95+%)	51	47	18	26	43	54
Most (66+%)	30	17	17	15	28	26
Half (50+%)	7	5	8	7	9	10
Few (33+%)	9	7	4	3	11	8
None (<5%)	3	24	53	49	8	1
Total	100	100	100	100	100	100

Source: Survey data, 2018

In 2017, 76 percent of farmers who received prefinanced inputs or input credit repaid, OGs repaid 79 percent of the total cost of prefinanced inputs, and OBs recovered 77 percent of costs for the inputs provided on credit in 2017. These figures suggest that repayment rates need to rise for the sustainable delivery of OB services, at least to levels that guarantee profitability of the services. However, this situation did not seem to improve in 2018, as 52 percent of farmers repaid 62 percent of the total cost of prefinanced inputs, and only 48 percent of the cost was recovered for the inputs provided on credit in 2018.

In 2017, 81 percent of farmers who received tractor services on credit could repay; 82 percent of expected repayment for the services provided on credit was actually repaid. However, 75 percent of the costs of tractor services provided on credit in 2017 was recovered. In 2018, 56 percent of farmers repaid OBs for tractor services provided on credit; 64 percent of expected repayment was actually repaid, and

OBs recovered 48 percent of the costs of services provided on credit. In 2016, the OB recovery rates for tractor service credit and input credit were estimated at 85 percent and 79 percent, respectively, but expected to rise after the survey's administration. The 2016 report estimated default rates of 10–15 percent, which was described to 'appear viable for the OB model.'

As OBs establish, learn and evolve, the project expects that their funding sources will diversify, and in particular, include higher levels of funds from formal financial institutions. A more diversified funding base and access to formal credit can be indicators of good business health. In 2018, 91 percent of OBs reported operating a bank account (checking or savings), but only 23 percent had a loan or line of credit from a bank or NBFI, compared to 96 percent and 29 percent, respectively, in 2016. It is estimated that 68 percent of funds used by OBs are from internal funds or retained earnings, 9 percent of funds are borrowing from banks, while purchases on credit and advances from customers contribute 11 percent, in roughly equal proportions (6:5).

The first hypothesis explored in this section, that OBs are employing and engaging with an increasing number of people in the community, especially women and youth, does not appear to be supported by the evidence. For all services provided by OBs, the proportion of women and youth in the OG base was either roughly the same or declined between 2017 and 2018. However, there is some evidence of unmet or growing demand for both tractor services and input credit among OGs, just as there is heightened interest in VSLAs and increasing interest in the use of certified seeds and fertilizer by OGs, through knowledge gained from demonstration plots. Therefore, the second hypothesis that OBs increasingly provide high quality services (diversity of roles/functions that OBs play) to more smallholder farmers in the community, irrespective of gender or age, and that the demand for OBs service is growing, may find some support.

3.5 Rules that Govern OB Relationships

This section describes the rules that govern OBs' relationships, and how these rules improve the OB's business profitability and role fulfilment to OGs. The formalization of OBs is a good indicator of sustainability because it is tied to increased ability of firms to access finance, enter contracts with buyers and provide decent work and protections to employees. The situation is compared with the rules structures of OBs in 2016, to track change over time. The following hypotheses are explored:

- Many more OBs continue to arrange formal transactions under or using written contracts and this trend is improving various aspects of business operation and profitability.
- Informal rules and social norms are as important and will continue to be important as formal rules in the OB business. In other words, OB business as currently organized in Ghana relies on informal rules and social norms as much as it does formal rules; and this is likely to continue into the foreseeable future.
- The non-enforcement of rules and regulations on business documentation, including registration, records, financial transparency continue to be a disincentive to financing and investment opportunities in the community-based Outgrower Business.

3.5.1 FORMALIZATION OF OB OPERATIONS

Unlike 2016, when 86 percent of OBs reported to be formally registered as businesses, the proportion of OBs formally registered as businesses was 76 percent in 2017 and 73 percent in 2018. The seeming decline in the proportion of OBs that reported being registered as businesses in 2018 compared to 2017 raises an issue of data quality. In both years, all the 265 surveyed OBs responded to the question. In all, 94 percent of OBs reported keeping records, with 76 percent using a book. Compared to 21 percent of OBs in 2016, only 11 percent reported using an Excel spreadsheet for recordkeeping in 2018. Registration and recordkeeping contribute to business health by promoting broader recognition and facilitating easy sharing of knowledge and information. These practices create better opportunities or chances of success for a business, even when the owner is absent. The use of mobile money in payment and settlement systems is an emerging trend. A total of 49 percent of OBs (2017) and 51 percent (2018) reported receiving payments using a mobile phone. Additionally, 51 percent and 52 percent of OBs reported

making payments using a mobile phone in 2017 and 2018, respectively. For management of input credit schemes, 78 percent of OBs used a book to keep track of credits, orders, and payments in 2018. Also, 44 percent of OB respondents offered higher prices or other forms of reward for better quality grain in 2017, compared to 36 percent who reported the practice in 2016. The majority (62 percent) of OBs have considered succession planning. Business owners typically have more than one candidate, has made a decision, informed at least one of the candidates, and is working with him/her.

However, 73 percent of OBs either have no financial statements (31 percent) or have unaudited financial statements. In spite of OBs' efforts to formalize their business operations, they are still not keeping records as required by third parties for an independent, credible, and fair assessment of the viability of the business. Other indicators discussed below show a high level of informality in OBs' set-up and operations, which may be discouraging inward investment by third parties, including lenders. This needs to change for OBs that rely on external funds, especially from formal financial institutions.

The extent to which OBs enter into marketing contracts is an additional indicator of the commitment to and implementation of a set of rules to guide transactions. The survey therefore collected marketing data disaggregated by market channel, in order to track OBs' use of various alternative arrangements in their marketing transactions. The options include product that is stored for sale during the off-season, or sold to the open market, through a verbal agreement or a written contract. Contracts provide a guaranteed market that is important for coordinating production, providing security to help OBs and OGs invest with greater confidence, and promoting business growth and development. Our results show that in 2017, 52 percent of OBs used verbal contracts in marketing their maize, 22 percent used no agreement, and another 22 percent of OBs market their maize through written contracts. A total of 5 percent of OBs stored their maize and sold off-season.

In the case of rice, 44 percent of OBs used verbal contracts in output marketing, 28 percent used no agreement, and 23 percent marketed their rice crop through written contracts. A total of 5 percent of OBs stored their rice and sold off-season. For soybeans, 46 percent of OBs used verbal contracts to market their product, 30 percent used no agreement, and another 19 percent marketed their soybeans through written contracts. A total of 5 percent of OBs stored their soybean and sold off-season. Based on the data above, it appears that the use of written contracts in marketing transactions was higher in 2016 than in 2017. The 2016 report indicates that 43 percent of all product sales were guided by written contracts and 31 percent through verbal agreement.

In 2017, 24 percent of outgrower farmers who received inputs on credit defaulted in repayment, compared to a default rate of 48 percent of OGs who received input on credit in 2018. In terms of the total amount an average OB expected in repayment, the default rate for the inputs provided on credit is estimated at 21 percent for 2017 and 38 percent for 2018. The two main reasons for default in repayment for input credit included poor harvest earned by the farmer and side-selling by the OG. shows that farmers or OGs earning a poor harvest is the dominant reason for default—55 percent of OBs rate default as at least somewhat frequent in 2017, compared to 30 percent for side-selling by OGs. The same pattern holds for 2018.

Table 3.16. Reasons for default among OG input credit recipients

	2017		2018	
	Side-sold	Poor harvest	Side-sold	Poor harvest
Very frequent	7	27	5	12
Somewhat frequent	23	28	21	24
Less frequent	36	31	30	33
Never	34	14	44	31
Total	100	100	100	100

Source: Survey data, 2018

During focus group discussions, OBs noted that when OGs default due to poor harvests, they continue their outgrower arrangement with the OB and reschedule the debt repayment to the next year. In other cases, OBs forgive the debt and carry on with the outgrower arrangement with OGs to 'build good will and social networks. In contrast, OGs in many places indicated that default due to side-selling tarnishes their image. In some cases, OBs drop OGs for default due to side-selling.

The hypothesis that many more OBs continue to arrange formal transactions under or using written contracts, and that this trend is improving various aspects of business operation and profitability, does not find support in the data. Overall the proportion of OBs that report use of written contracts in the marketing of their produce remains roughly 20 percent in 2017, lower that its 2016 level. The hypothesis that informal rules and social norms are as important and will continue to be important as formal rules in the OB business, may find some support. In other words, OB business as currently organized in Ghana relies on informal rules and social norms as much as it does formal rules; and this is likely to continue into the foreseeable future. More OBs used oral contracts in their marketing arrangements than written contracts. OGs that default may be forgiven by OBs to avoid legal battles and associated 'image issues' that efforts to enforce contracts may bring. The non-enforcement of rules and regulations on business documentation, including registration, records, and financial transparency continue to be a disincentive to financing and investment opportunities in community-based OBs. This hypothesis may also find support. Non-enforcement of rules by regulatory authorities was not investigated, but there is evidence that OBs do not keep records that promote financial transparency, such as audited financial statements.

3.6 Investing and Leveraging Resources

This section seeks to determine which resources OBs accessed in 2018, and how OBs leveraged these resources to ensure effective business management and profitability. Access to finance is a primary focus of this section, which was previously the biggest constraint to growth identified by OBs in 2016. Other topics include operating costs and revenue of service provision to OGs, used to evaluate margins and profitability. Another important question is how OBs' financial flows ensure sustainable liquidity. We assume that a sustainable OB business will have access to finance and sufficient profitability to pay back investors. We also explore how OBs access market- and production-related information, an important business resource, as well as OBs' other sources of information. The hypotheses explored in this section are:

- The top three constraints to growth identified in 2016 (access to finance, logistics and transportation, and outgrower loyalty) will no longer be in the top three constraints identified in 2018 because OBs are leveraging their resources, including social capital. Social capital refers to the good will that derives from non-business relations fostered by the OB through their personal interactions as members and participants or social actors in their communities.
- The number of OBs investing in the growth and innovation in their businesses is increasing as a result of the introduction of the project's grant system.
- The number of OBs accessing financial facilities leveraged on their revenues and business operations is on the rise, contributing to business growth.

3.6.1 BUSINESS INVESTMENT AND ACCESS TO FINANCE

In 2018, 23 percent of OBs reported having a line of credit or a loan from a bank or non-bank financial institution. Land, buildings, and ownership of a firm were popular forms of collateral required by lending institutions (32 percent of respondents). In addition, 14 percent of OBs accessing loans used accounts receivable, 18 percent used machinery and equipment, including movables, and 4 percent used inventories. During the 2018 operating year, 36 percent of OBs did not need to apply for a loan, while 30 percent chose not to apply for a loan, citing unfavorable interest rates. Another 11 percent chose not to apply for a loan due to 'application procedures being too complex' and 'collateral requirements being too high'. A total of 9 percent did not apply for a loan for various other unspecified reasons. In 2016, an estimated 37 percent of OBs that needed a loan were rejected or discouraged for some reason.

In 2017, 65 percent did provide/invest in some form of training for their staff. The proportion was slightly lower, at 63 percent, in 2018. Other results show that 47.5 percent of OBs in 2017 and 27.5 percent in 2018 reported investing in land or buildings. The average investment in land or buildings was GHS 25,965. 48 ($5,770) per OB in 2017 and GHS 22,894.11($ 5,088) per OB in 2018. In other areas of business investment, 32.5 percent of OBs in 2017 and 19 percent in 2018 reported the purchase of vehicles or transport. The average investment in vehicles or transport was GHS 47,402.13 ($10,534) per OB in 2017 and GHS 36,700.39 ($8,156) per OB in 2018. The proportion of OBs that invested in vehicles between 2014 and 2016 was 48 percent, at an average cost of GHS 18,946 ($ 4210). Overall, 60 percent of OBs reported more than GHS 20,000 ($4,444.) in capital investment into the business in 2018 (Table 3.17).

A total of 39 OBs reported purchasing tractors in 2017, with 142 reporting tractor repair expenses. In 2018, 20 OBs reported purchasing tractors, with 127 reporting tractor repair expenses. The average OB invested GHS 93,274 ($20,728) in tractors and an additional GHS 7,433 ($1652) on tractor repairs in 2017. The average OB invested much less in tractors in 2018, estimated at GHS 49,000 ($10,889), but with a slightly higher expenditure on tractor repairs of GHS 7,651 ($1,700) . Between 2014 and 2016, 42 percent of OBs invested in a tractor worth GHS 75,621 ($16,805); similarly, 31 percent of OBs invested in threshers at an average of GHS 9,128 ($2,028). In the case of threshers, the average investment in threshers per OB was GHS 11,089 ($24,64) , with GHS 1,264 in repair costs in 2017. This average investment in threshers per OB increased to GHS 17,182 ($3,818) in 2018, with a repair cost of GHS 1,167 ($ 259.33) .

Table 3.17. Distribution of the total amount (GHS) of capital investment made into the business, 2018

	Frequency	Percent
No capital Investments made since business	3	1.1
GHS 1–5,000	13	4.9
GHS 5,000–10,000	28	10.6
GHS 10,000–15,000	40	15.1
GHS 15,000–20,000	22	8.3
More than GHS 20,000	159	60.0
Total	**265**	**100.0**

Source: Survey data, 2018

Similar to the 2016 report, the 2018 survey investigated the growth rate of net investment (i.e., investment less depreciation) for tractors and threshers. For the investment estimate, the team took the actual cost paid by the OB for a tractor or thresher, and approximate maintenance by expenditures made on repairs. The survey data suggests the useful life of a tractor as an estimated 7.6 years, which is similar to the 7.5 years reported in the 2016 report. However, this survey indicated the useful life of a thresher to be an estimated nine years, substantially higher than the six years reported in 2016. These results indicate that the ratio of annual investment to depreciation gives a positive growth rate of 17.5 percent for tractors; that for threshers is zero percent in 2018. The growth rate in tractor investment in 2018 is low compared to 48 percent between 2014 and 2016, especially given that the inadequate supply of tractor plowing services continues to be one of the common complaints of OGs. The zero growth rates in investment in threshers, combined with the decline in the percentage of OBs offering threshing services, raises questions that may merit further inquiry.

How much of working capital is required for OBs to expand their businesses or for potential OBs to enter into the service delivery space? The following are worth noting regarding basic cost elements for each service arena, as provided by OBs (Table 3.18).

Table 3.18. Working capital requirements for OB services

Tractor services		Input credit	
2017	2018	2017	2018
49% of 580 acres of plowing services was on credit	47% of 746 acres were on credit	GHS 53,962 in input pre-finance	GHS 71,333 in input pre-finance
Cost of plowing per acre GHS 75	Cost of plowing per acre GHS 80	11.1% mark up	11.1% mark up
GHS 21,315 WC needed	GHS 28,050 WC needed	GHS 48,026 WC needed	GHS 63,486 WC needed

Source: Survey data, 2018

In 2017, an OB needed working capital of GHS 21,315 ($4,736.67) to provide tractor services (this excludes investments in capital equipment), while this requirement increased to GHS 28,050 ($ 6,233) in 2018. A similar trend is observed for input credit delivery: GHS 48,026 ($10,672) (2017) and GHS 63,486 ($14,108) (2018)). Given the increase in the scale of operation, at least as seen in tractor services, the sharp rise in the working capital requirements derive from both inflation and the size of operation. The data show that it is relatively easier, in terms of working capital requirements, to venture into tractor services than to participate as an OB in input delivery.

Table 3.19. 9 presents the working capital requirement for aggregating (buying) and selling commodities from OBs in 2017. Similar information for 2018 is not reported here, due to inadequate data points to estimate working capital requirements: only seven OBs indicated they marketed maize in 2018, rice (four OBs), and soybean (three OBs). In addition, some missing data for these OBs further reduced the sample size to effectively conduct this analysis. A major reason for this low response is the fact that the survey took place before the harvest season, and OBs were not yet actively involved in aggregating/marketing activities.

Table 3.19. Average marketing working capital (WC) requirements, 2017

Commodity	Indicator	Units	Values
Maize (n=85)			
	Quantity purchased	MT	12,961
	Quantity purchased/OB	MT/OB	127
	Average WC requirement	GHS	99,312
Rice (n=18)			
	Quantity purchased	MT	363
	Quantity purchased/OB	MT/OB	140
	Average WC requirement	GHS	12,414
Soybean (n=19)			
	Quantity purchased	MT	365
	Quantity purchased/OB	MT/OB	159
	Average WC requirement	GHS	22,135

Source: Survey data, 2018

Note: Data not consistent to calculate turnover. Operational cost is used as proxy for working capital requirements (which includes transport cost-constituting about 15.7 percent of the value of goods traded); data not adequate/enough to calculate these indicators for 2018.

The total volume of maize marketed significantly dominated the three commodities within the project's operational zone, although on a per capita basis, soybean was the most traded commodity and maize was the least. The average working capital requirement is highest for maize, requiring an estimated GHS 99,312($22,069) with rice recording the lowest working capital requirement. The working capital amount

represents the average amount needed for an OB to commence aggregation/purchasing activities per production season.

In terms of obstacles to business growth the top three constraints facing OBs as reported in the survey are logistics and transportation (34 percent), access to financial services (19 percent) and outgrower loyalty (side-selling, repayment) (17 percent) (Table 3.20). OBs identified the same constraints as barriers to growth in 2016; logistics and transportation and access to financial services only swapped places, with logistics and transportation being at the top.

Table 3.20. Constraints to OB growth

Which of the Following is the Most Significant Obstacle to OB Operations?	Frequency	Percent
Logistics and transportation	90	34.0
Access to financial services	50	18.9
Outgrower loyalty (side-selling, repayment)	44	16.6
High costs of inputs	22	8.3
Reducing product spoilage	15	5.7

Source: Survey data, 2018

The hypothesis that the top three constraints to growth identified in 2016 (access to finance, logistics and transportation, and outgrower loyalty) would no longer be in the top three constraints identified in 2018, because OBs are leveraging their resources, including social capital, is not supported by the evidence. Indeed, the top three constraints to OB growth in 2018 are logistics and transportation, access to finance, and outgrower loyalty. We find no evidence in support of the hypothesis that the number of OBs investing in their business's growth and innovation is increasing as a result of the introduction of the project's grant system. The number of OBs that reported investing in their businesses, especially in tractors, vehicles, and threshers, appears to have fallen compared to 2016. The positive growth rate in tractor investment in 2018 is lower than in 2016. Also, the hypothesis that the number of OBs accessing financial facilities leveraged on their revenues and business operations is increasing, contributing to business growth, does not appear to be supported by the evidence. A total of 23 percent of OBs reported obtaining a loan from a bank or NBFI in 2018, compared to 29 percent in 2016. The 2016 report provides no data on loans leveraged on OBs' revenues and business operations.

3.7 OB Business Performance

This section reports the overall business performance of OBs by assessing the operating margins/profitability of five OB business units/enterprises—output marketing (maize, rice, and soybean), provision of tractor services, input retailing, input prefinancing, and shelling/threshing services. This section also assesses the growth of the OB-OG relationship, and the potential sustainability of these relationships. The following hypotheses are explored:

1. The general trend of operational and financial results supports operational and financial viability and sustainability of the Outgrower Business and outgrowers.
2. OBs are investing in operational and financial records and annually planning on the results to ensure sustainability and profitability will be greater in 2018 than in 2016.

In general, the study finds that OBs are profitable, with good operating profit margins commensurate with the scale of business activity. Each OB-operated business unit is profitable. The average operating margin per OB is as follows: output marketing (18 percent), tractor services (19.8 percent), input retailing (17.5 percent), input prefinancing (mark-up of GHS 2,779 ($618)per OB), and shelling/threshing services (33 percent). In the case of input prefinancing, the data suggests increasing OG demand for this service.

These findings have implications for the sustainability of the OB-OG model with respect to business performance. Although these margins may motivate OBs to stay in business, lower operating profit margins can potentially expose OBs to financial risks. Hence, these margins must be improved to ensure long-term business existence and performance.

3.7.1 GROWING AND SUSTAINING OB ENTERPRISES

Additional investments of new machinery, equipment, and infrastructure facilities by an already existing business points to business confidence to expand operations. In 2017, 44 OBs purchased 57 used or new tractors for their operations, and in 2018, 28 OBs purchased 37 used or new tractors. In 2017, 25 OBs purchased 33 new or used threshers/shellers (an average of 1.3 per OB). In 2018, 20 OBs purchased 24 new or used threshers/shellers (an average of 1.2 per OB). A total of 11 OBs spent GHS 215,000 ($47,778) to renovate or construct warehouses.

Investments in tractors and shellers/threshers, amounting to GHS 1,746,360 ($388,080) in 2017 (tractors, n=38; shellers, n=14) and GHS 1,402,516 ($311,670 in 2018 (tractor, n=21; shellers, n=18), are an indication of the potential impact of the OB-OG relationship on business performance. Table 3. 11. summarizes the 5R framework within the OBs business performance component.

Table 3. 11. The 5R framework in the Results-business performance component

The 5 Rs	Items/description	No. of OBs	No.Quantity
Resources (Items purchased)	Tractors (new or used): 2017	44	57
	Tractors (new or used): 2018	28	37
	Shellers (new or used): 2017	25	33
	Shellers (new or used): 2018	20	24
	Renovate or construct warehouse	11	NA
Roles (services provided)	Marketing of output: 2017	113	NA
	Marketing of output: 2018	29	NA
	Tractor services: 2017	195	NA
	Tractor services: 2018	192	NA
	Input retailing: 2017	45	NA
	Input retailing: 2018	30	NA
	Inputs pre-financing: 2017	152	NA
	Inputs pre-financing: 2018	145	NA
	Shelling/threshing: 2017	127	NA
	Shelling/threshing: 2018	89	NA
Relationships (linkages)	Strength (high)	265	70%
	Impact (high)	265	71%
Rules	Business registered	265	73%
	Contracts (verbal) for maize	265	47.3%
Results	Average profits (margins)	265	22.1%

Source: Survey data, 2018

3.7.2 DETERMINATION OF BUSINESS OPERATING MARGINS PER ENTERPRISE

The study analyzed five business enterprises/units to determine operating margins, including output marketing, tractor service provision (ploughing, harrowing, seeding/planting, agrochemical application, and haulage), input retailing, input prefinancing, and shelling/threshing services. The study examined each business unit to determine the average OB's profitability or margins.

3.7.2.1 OUTPUT MARKETING

The survey reports that 113 OBS (44 percent) aggregated/marketed products in 2017. This figure declined to 29 OBs (12 percent) in 2018. As indicated in Table 3.22, maize was the most commonly traded commodity by volume (about 94.7 percent) by 94.6 percent of OBs in 2017, whereas 34.9 percent and 28.7 percent of OBs sold rice and soybeans, respectively. Maize also provided the highest share in total profits (94.6 percent) of the three commodities. With available working capital, rice recorded an operating profit, with an operating profit margin of 39 percent, followed by maize (28 percent), and soybeans (11 percent). Compared to the 2016 survey, rice also recorded the highest margin of 9.5 percent, followed by soybeans. Although rice yielded the highest operating profit margins of 39 percent, rice only contributed 4 percent to the total share of profits.

Table 3.22. Profitability (margin) analysis from marketing of commodities by OBs, 2017

Commodity	Volume of sales (MT)	% of sales volume	Total Revenues (TR)	Total Operating Costs (TOC)	Operating Profit (OP)	Operating Profit Margin (%)	Share in Total Profit (%)
Maize (n=105)	12,961	94.7	13,629,525	9,745,964	3,883,561	28%	94.6%
Rice (n=38)	363	2.7	422,625	258,537	164,088	39%	4.0%
Soybean (n=31)	365	2.7	544,127	486,604	57,523	11%	1.4%
	13,689	100			4,105,171	26%	100.0%

Source: Survey data, 2018

Table 3.23. 3 presents a different scenario on per capita (OB) basis. Maize remains the most commonly traded commodity on average, representing 81 percent of sales volume. In terms of average operating profits, the maize commodity returned the highest profit of GHS 31,651($7,054) per OB, followed by soybean (GHS 4,619) ($ 1,026, and rice (GHS 3,246) ($721). On average, maize provided the highest profit margin of 22 percent to OBs, followed by rice and soybean, respectively.

In general, the study finds that the marketing (aggregation and selling) of maize provides the highest operating profit margin (22 percent) and also contributes about 80 percent of the total profits from the three production enterprises.

Table 3.23. Profitability (margin) analysis per OB from marketing of commodities by OBs, 2017

Commodity	Avg. sales volume (MT)	% of sales volumes	Avg. Total Revenues (ATR)	Avg. Total Operating Costs (ATOC)	Avg. Operating Profit (AOP)	Avg. Operating Profit Margin (%)	Share in Total Profit (%)
Maize (n=105)	127.07	81.0	146,554	114,903	31,651	22	80
Rice (n=38)	13.97	8.9	17,609	14,363	3,246	18	8
Soybean (n=31)	15.86	10.1	30,229	25,611	4,619	15	12
	156.90	100.0			39,515	18	100

Source: Survey data, 2018

3.7.2.2 PROVISION OF TRACTOR SERVICES

At least 195 and 192 OBS indicated that they provided tractor services (including ploughing, harrowing, seeding/planting, agrochemical application, and haulage) to OGs in 2017 and 2018, respectively, as shown in Table 3.24. Ploughing provided the highest average revenue in both 2017 GHS 47,188 ($10,486) and 2018 GHS 61,581 ($13,685), while tractor repair represented the highest cost component for OBs.

Table 3.24. Profitability (margin) analysis for tractor service provision by OBs

Indicators	2017		2018		% change	
	Total	Average	Total	Average	Total	Average
Area ploughed (acres)	69,546	669	75,527	763	9%	14%
No. of farmers ploughed for	31,504	300	29,461	298	-6%	-1%
Revenue (ploughing)	4,765,975	47,188	5,911,800	61,581	24%	31%
Revenue (harrowing)	1,132,320	43,551	1,491,820	51,442	32%	18%
Revenue (seeding)	326,300	27,192	453,890	41,263	39%	52%
Revenue (agrochemical application)	351,450	25,104	484,134	34,581	38%	38%
Revenue (haulage)	347,290	38,588	299,005	37,376	-14%	-3%
REVENUE (ALL)	6,923,335	67,876	8,640,649	90,007	25%	33%
Cost (repairing tractor)	2,240,940	30,283	3,331,600	54,616	49%	80%
Cost (operator)	1,653,700	17,407	1,832,623	20,139	11%	16%
Cost (fuel)	1,965,682	19,657	2,278,915	23,989	16%	22%
Costs (other costs)	34,460	1,723	34,560	2,160	0%	25%
COSTS (ALL)	5,894,782	57,792	7,477,697	77,893	27%	35%
Operating Profit (OP)	1,028,553	10,084	1,840,952	19,177	79%	90%
OP margin (%)	14.9%	14.9%	19.8%	19.8%	33%	33%
Sample size (n)	102	102	96	96		

Source: Survey data, 2018

The total and average revenues increased by 25 percent and 33 percent, respectively, from 2017 to 2018, while total and average costs increased by 27 percent and 35 percent, respectively, over the same period. Average operating profit for tractor services over the period increased by 90 percent, from an average of GHS 10,084 ($2,241) to GHS 19,177 ($4,261.56), with OBs making an average margin of 14.9 percent (2017) and 19.8 percent (2018). OBs are improving upon their profit margins as they render tractor services to OGs.

3.7.2.3 INPUT RETAILING

OBs retailed all kinds of agricultural inputs to OGs, including inorganic fertilizers, pesticides, weedicides, improved and hybrid seeds, and knapsack sprayers. Forty-five OBs indicated retailing inputs in 2017, declining to 30 OBs in 2018. As indicated in Table 3.25, the agricultural input retailing yielded an average operating profit of GHS 117,631($2,6140.22) in 2017, declining to GHS 35,298($7,844) in 2018, representing a negative growth rate of approximately 70 percent between the two periods. This business unit also represents another profitable venture for OBs, although average profit margins declined by approximately 76 percent (from 2.6 percent in 2017 to 0.6 percent in 2018). This could be partly attributed to Government of Ghana input subsidies to promote planting for food and job policy.

Although the subsidy program is not new, it has received great support in the last two years with wider coverage in 2018 following implementation of the government's planting for food and jobs program.

Table 3.25. Profitability (margin) analysis for input retailing by OBs

Indicators	2017		2018		% change	
	Total	Average	Total	Average	Total	Average
Revenue: retailing inputs (ALL)	140,715,437	4,501,344	162,627,743	5,502,461	16%	22%
Operating costs (ALL)	112,824,666	3,673,639	133,780,587	4,528,283	19%	23%
Operating Profit (ALL)	27,890,771	774,744	28,847,156	961,572	3%	24%
Operating Profit Margin (%)	19.8%	17.2%	17.7%	17.5%	-11%	2%
Sample size (n)	36	36	30	30		

Source: Survey data, 2018

3.7.2.4 INPUT PREFINANCING

The survey revealed that 152 OBs prefinanced 81,950 OGs in 2017, (average of 539 OGs per OB), and 145 OBs prefinanced 142,573 OGs in 2018, (average of 983 OGs per OB) representing a 74 percent increase in the demand for and/or supply of agricultural input prefinancing (Table 3.26). OBs prefinanced seeds, fertilizers, pesticides, and other inputs. Fertilizers topped the inputs requiring high total and average prefinancing cost by OBs. The average cost of prefinancing seeds and fertilizers increased marginally, by one percent and seven percent, respectively during the period. The average cost of prefinancing pesticides and other inputs (like knapsack sprayers) declined by 62 percent and 89 percent, respectively.

Table 3.26. Profitability (margin) analysis for input prefinancing by OBs

Indicators	2017		2018		% change	
	Total	Average	Total	Average	Total	Average
No. of farmers prefinanced	81,950	612	142,573	983	74%	61%
TC (prefinanced seeds)	1,547,237	14,460	2,022,071	14,547	31%	1%
TC (prefinanced fertilizers)	4,923,275	41,372	6,255,658	44,366	27%	7%
TC (prefinanced pesticides)	566,642	10,691	556,115	4,030	-2%	-62%
TC (prefinanced other inputs)	136,725	15,192	11,400	1,629	-92%	-89%
TC (ALL)	7,173,879	54,348	8,845,244	32,760	23%	-40%
Mark-up (Margin) charged on:						
Prefinanced seeds	444,101	7,402	402,356	3,025	-9%	-59%
Prefinanced fertilizers	231,835	3,997	290,239	2,216	25%	-45%
Prefinanced pesticides	80,754	4,038	46,615	359	-42%	-91%
Prefinanced other inputs	30,655	7,664	11,174	1,862	-64%	-76%

Margin (ALL)	787,344	10,094	750,383	2,779	-5%	-72%
Sample size (n)	78	78	69	69		

Source: Survey data, 2018

A plausible reason may be that more OGs are realizing the importance of utilizing improved seeds and fertilizers, hence the increased OBs costs of prefinancing. In general, the average prefinancing costs per OB declined by 40 percent, from GHS 54,348 ($12,077.33) in 2017 to GHS 32,760($7,280) in 2018. With respect to mark-ups or margins made in input prefinancing, the prefinancing of other inputs and seeds recorded the first (GHS 7,664) ($ 1,703) and second (GHS 7,402) ($ 1644.89) highest average mark-up, respectively, in 2017. In general, OBs made an average mark-up of GHS 10,094 ($2,243) in 2017, declining to GHS 2,779 ($618) in 2018, representing a drop-in mark-up/margin of 72 percent.

3.7.2.5 SHELLING/THRESHING SERVICES

Table 3.27 presents the operating margins made by OBs that provided shelling/threshing services to OGs in 2017 and 2018. About 127 OBs mentioned they provided shelling services to OGs in 2017, and 89 OBs threshed for OGs in 2018. OBs primarily provided maize threshing services to their respective OGs, with an OB shelling an average of 1,317 bags (100 kg) of maize per OG in 2017. This increased to 6,045 bags per OG in 2018, representing a 359 percent increase in bags of maize shelled.

Average operating profits increased from 2017 to 2018. OBs made an average profit of GHS 11,481($2,551) (with 58 percent profit margin) for providing shelling/threshing services in 2017, increasing to GHS 15,413($3,425) (with 33 percent profit margin) in 2018. In general, average profit increased by 34 percent during the period. In general, threshing services represent another profitable venture for OBs within catchment communities that demonstrate increasing demand for threshing and other services.

Table 3.27. Profitability (margin) analysis for shelling/threshing services by OBs

Indicators	2017		2018		% Change	
	Total	Average	Total	Average	Total	Average
No. of farmers shelled for	24,673	262	14,954	267	-39%	2%
No. of bags shelled (100kg)						
Maize	122,470	1,317	332,451	6,045	171%	359%
Rice	4,586	306	10,845	834	136%	173%
Soybean	2,314	231	6,297	787	172%	240%
Total	129,370	1,376	349,593	6,243	170%	354%
Revenue (ALL)	1,858,350	19,770	2,604,298	46,505	40%	135%
Operating Cost (ALL)	779,121	8,289	1,741,177	31,092	123%	275%
Operating Profit (ALL)	1,079,229	11,481	863,122	15,413	-20%	34%
Operating Profit Margin (%)	58%	58%	33%	33%	-43%	-43%
Sample size (n)	94	94	56	56		

Source: Survey data, 2018

4. CONCLUSIONS AND RECOMMENDATIONS

This study generally examined the strategic roles that OBs in the various identified commodities value chains play in their agribusiness relationships with smallholder OG farmers and other actors in enhancing and sustaining food and nutrition security within the USAID ADVANCE project's operational areas in Ghana. The conclusions are derived from the study's findings and guided the emergence of the recommendations.

4.1 Conclusions

This study generally concludes that the OB-OG sustainability model, as implemented by the ADVANCE project within USAID'S 5R framework, is yielding anticipated results by providing needed services and market outlets for smallholder farmers, OGs, connected to OBs, who are generating adequate profit margins through their investments and business networks created with key value chain actors. Thus, the current OB model shows some degree of sustainability, although this sustainability can be enhanced. Specific conclusions pertaining to the 5Rs are below.

Evaluating OB Business Relationships

- Only 20 OBs (7.5 percent) are females and 4 male OBs (1.5 percent) can be classified as youth (18–29 years). OBs operate for seven years on average.
- About 92 percent of the OBs have at least 1 percent youth in their OB base.
- The 265 OBs surveyed maintain a wide and diverse network of value chain actors, all OBs (100%) connected with at least one value chain actor (increased their networks), OBs increased the number of OG business networks by about 3.5 percent from 2017 to 2018, and also developed stronger business relationships with several value chain actors, positively impacting their agribusiness enterprises.
- The majority of OBs provide tractor services, while few OBs engage in input retailing.
- The number of OBs providing all five services to OGs declined from 2017 to 2018. However, the supply of input credit (prefinancing) services increased within the same period, by almost 70 percent.
- The majority (70 percent) of OBs perceived the strength of their relationship with various value chain actors as high, while another 71 percent perceive the impact of their relationships on their agribusiness enterprises as high.
- OBs have good business connections with key value chain actors and OGs, ensuring good prospects and outlook for sustained business.

Role of OBs and Actors in the Value Chain

The first hypothesis explored in this section—that OBs are employing and engaging with increasing number of people in the community, especially women and youth—does not appear to be supported by the evidence. For all services provided by OBs, the proportion of women and youth in the OG base either stayed constant or declined between 2017 and 2018.

- However, there is some evidence of unmet or growing demand for both tractor services and input credit among OGs; just as there is heightened interest in VSLAs and increasing interest in use of certified seeds and fertilizer by OGs, through knowledge gained from demonstration plots. Thus, the second hypothesis may find some support: that OBs increasingly provide high quality services (play a diversity of roles) to more smallholder farmers in the community, irrespective of gender or age, and that the demand for OB services is growing.

- While tractor service and input credits recorded substantial growth rates, a supply deficit for both services to OGs continues; there is also heightened interest in demonstration plots and VSLA activities.
- There is a noticeable decline in OBs' involvement in the provision of threshing and output marketing to OGs.
- OBs provide vital services to a diverse group of OGs, reaching men, women, and youth in relatively stable proportions. The relationships appear successful, with very high rates of OG retention.

Rules that Govern OB Relationships

- The survey data does not support the hypothesis that many more OBs continue to arrange formal transactions under or using written contracts and that this trend is improving various aspects of business operation and profitability. Overall, the proportion of OBs that report use of written contracts in the marketing of their produce remains at roughly 20 percent in 2017, which is lower than 2016 levels.
- The hypothesis that informal rules and social norms are as important and will continue to be as important as formal rules in the OB business model, may find some support. More OBs used oral contracts in their marketing arrangements than written contracts; OGs that default may be forgiven by OBs to avoid legal battles and associated 'image issues' that could result from efforts to enforce contracts.
- The non-enforcement of rules and regulations on business documentation, including registration, records, and financial transparency, continue to be a disincentive to financing and investment opportunities for community-based OBs. This hypothesis may also find support, albeit indirectly; though the survey did not investigate non-enforcement of rules by regulatory authorities, there is evidence that OBs do not keep records that promote financial transparency such as audited financial statements.
- While OG default is still an issue, low or poor yields, often associated with weather failures, are the main reasons for reported defaults.

Investing and Leveraging Resources

- The evidence does not support the hypothesis that the top three constraints to growth identified in 2016 (access to finance, logistics and transportation, and outgrower loyalty) will no longer be in the top three identified constraints in 2018 because OBs are leveraging their resources, including social capital. Indeed, the top three constraints to OB growth in 2018 are logistics and transportation, access to finance, and outgrower loyalty.
- The grants study provides evidence to support the hypothesis that the number of OBs investing in their business's growth and innovation is increasing as a result of the introduction of USAID's ADVANCE project's grant system. The grants study of 44 grantee OBs found that 75 percent of them invested part of their revenue accrued from service provisions into additional equipment to support their operations. The OBs invested in equipment including tractors, shellers, rotavators, rippers. Others include, trailers, boom sprayers, weighing scales, bullock ploughs, tarpaulins, tires and mechanized irrigation systems. Amidst increasing working capital requirements, OBs continue to invest in their business operations and those in need of external capital leverage their resources (e.g. accounts receivable; machinery, equipment including movables; and inventories (stored product) as collateral) for loans.

- The evidence does not support the hypothesis that the number of OBs accessing financial facilities leveraged on their revenues and business operations are on the rise, contributing to business growth: 23 percent of OBs reported obtaining a loan from a bank or non-bank financial institution in 2018, compared to 29 percent in 2016.
- The majority of OBs continue to be rationed out of the market for loans (formal credit) due to unfavorable interest rates, the difficult process, and other requirements.

Results: OB Business Performance

Some OBs invested in tractors, threshers/shellers, and the renovation or construction of warehouses from 2017 to 2018. In 2017, 44 OBs invested in 57 used or new tractors, and 25 OBs invested in 33 new or used threshers/shellers (representing an average of 1.3 per OB). In 2018, 28 OBs invested in 37 used or new tractors, 20 OBs invested in 24 new or used threshers/shellers (representing an average of 1.2 per OB).

- Investments in tractors and shellers/threshers totaled GHS 1,746,360 ($388,080) for 2017 and GHS 1,402,516($311,670) for 2018, representing a 78 percent decline in investment in 2018; 11 OBs spent GHS 215,000 ($ 47,778) to renovate or construct warehouses.
- Not all OBs aggregated/marketed commodities, namely, maize, rice, and soybeans, from OGs beyond the recovery of produce for repayment for inputs provided on credit. In total, 44 percent of OBs (113 OBs) aggregated/marketed commodities in 2017 and 29 percent did in 2018.
- Maize was the most traded commodity by volume (94.7 percent) in 2017, providing the highest average profit margin of 22 percent for OBs, followed by rice and soybeans.
- OBs are improving upon their profit margins for tractor services accompanied with unmet demands: ploughing provided the highest average revenue in both 2017 (GHS 47,188) ($10,486) and 2018 (GHS 61,581) ($13,685), while tractor repairs was the highest cost component. The average operating profit increased by 90 percent during the period, from an average of GHS 10,084 ($2,241) to GHS 19,177 ($4,262), and an average margin of 14.9 percent (2017) and 19.8 percent (2018) per OB.
- Input retailing is profitable: 45 OBs retailed inputs in 2017, declining to 30 OBs in 2018; retailed inputs include inorganic fertilizers, pesticides, weedicides, improved/hybrid seeds, and knapsack sprayers; average operating profit declined by 70 percent between the two periods, a decline in the average profit margin of 2 percent (from 2.6 percent in 2017 to 0.6 percent in 2018).Input prefinancing is a profitable business, with increased demand for this service from OGs. Input prefinancing increased by 74 percent during the period; prefinancing demands for fertilizers and improved seeds increased, while demands for pesticides and other inputs (like knapsack sprayers) declined. Generally, the average prefinancing costs per OB declined by 40 percent, from GHS 54,348 ($12,077) in 2017 to GHS 32,760 ($ 7,288) in 2018.
- Other inputs (for example, knapsack sprayers) and seeds provided the highest mark-ups—GHS 7,664($1,703) and GHS 7,402($1,644), respectively—in 2017. In general, OBs made an average of GHS 10,094($2,243) in 2017, which declined to GHS 2,779($617.5) in 2018, representing a drop-in mark-up/margin of 72 percent.
- Shelling/threshing services is a profitable business for OBs, undertaken by 127 and 89 OBs in 2017 and 2018, respectively. Maize dominated the threshing/shelling services to OGs, with an OB shelling an average of 1,317 bags (100 kg) of maize in 2017 and 6,045 bags of maize in 2018, representing a 359 percent increase in bags of maize shelled.
- Shelling generated an average operating profit of GHS 11,481($2,551) in 2017 (with a 58 percent profit margin) and GHS 15,413($3,425) in 2018 (with a 33 percent profit margin).
- There is high potential for OBs to increase profits (margins) and sustain business operations through increased demand for services and commitment by OBs to investment in systems that enhance business operations.
- The sustainability of the OB model can be improved if the following issues and concerns are addressed:
    - Only four OBs are categorized as youth.
    - OB-OG operations are highly informal, with little or no relevant recordkeeping. Fewer than 20 percent of OBs use written contracts.
    - Unenforced contracts and the rescheduling of OG repayments to the next year introduce business and financial risks for OBs.

Logistics and transportation, access to finance, and outgrower loyalty remain major constraints to outgrower businesses. The OB model being implementing is a workable and profitable model that provides services and market outlets for smallholder farmers to ensure sustained business growth.

4.2 Recommendations

Evaluating OB Business Relationships

- Deliberate efforts should be directed at identifying and recruiting young entrepreneurs as OBs in catchment communities, by creating economic incentives and facilitating access to credit, to enhance the sustainability of the OB model.

Role of OBs and Actors in the Value Chain

- Project implementers should explore avenues to extend the reach of OB services in the project areas, including possible twinning arrangements between OBs and the government's agricultural mechanization service centers (AMSECs).
- Project implementers should also devise mechanisms for expanding VSLAs and demonstration plots in the project's operational zones.
- Project implementers should investigate the reasons for the decline in OBs' involvement in the provision of threshing and output marketing to OGs in the project's operational zones.

Rules that Govern OB Relationships

- Project implementers should intensify efforts to encourage formalization of OBs' operations, and all OBs should be encouraged to keep records that promote financial transparency such as audited financial statements.
- Project implementers should explore the feasibility of introducing crop insurance products in the OB-OG relationship to provide protection for crop losses.

Investing and Leveraging Resources

- Project implementers should intensify efforts to facilitate linkages between OBs and other value chain actors, including formal financial institutions, with emphasis on creating opportunities for these actors to better understand each other's needs and requirements.
- Project implementers should intensify efforts to improve OBs' knowledge of business operations, especially how to organize operations to enable better leverage on already existing assets.

Results: OB Business Performance

- Project implementers should target deliberate efforts at enrolling interested, passionate, and committed youth to assume the role of an OB, as this may contribute to the sustainability of the model.
- Project implementers must continue to build the capacity of local project partners by providing further training on sound business principles and practices that will promote the long-term health of OB enterprises.
- Project implementers should support OBs to expand their input credit schemes to OGs by facilitating OBs' access to credit.
- Project implementers must work with OBs to develop total quality management systems in all the five business units—tractor services, marketing/aggregating, input retailing, input prefinancing, and shelling/threshing services—that will sustain and enhance business operations.

ANNEX 1: STUDY QUESTIONNAIRES

Assessing the Sustainability of OB Model Service Provision and Outgrower Businesses' Networks Effectiveness and Efficiency in Engaging Other Actors in the Value Chains Study

Questionnaire for OB Sustainability, 2018

Date of interview		November 2018		
Enumerator code				
Respondent code				
DEMOGRAPHICS				
	Region	1) Brong Ahafo 2) Northern 3) Upper East 4) Upper West 5) Ashanti		
	District			
	Community			
	GPS coordinates			
	Name of OB			
	Gender	1) Male 2) Female		
	Age	……. (years)		
	Educational level	1) No schooling 2) Adult education / non-formal education 3) Primary 4) Secondary 5) Vocational 6) Tertiary		
	Types of crops grown	1) Vegetables 2) Maize 3) Rice 4) Soybean 5) Others		
		Crop	Area	Unit

	Total farm size for each commodity cultivated this year			1=Ha 2=Acres
		Vegetables		
		Maize		
		Rice		
		Soybean		
		Other, specify		
	Number of years in OB business	…….. (years)		
	Type of business services offered by OB	Select all that apply 1. Tractor services 2. Combine harvester 3. Prefinance (input credit) 4. Input retailing 5. Shelling/threshing 6. Output marketing 7. Extension and training 8. Other (please specify)		

A. MANAGEMENT				
The purpose of this section is to help USAID's ADVANCE project understand how an OB manages the administrative aspects of operations (accounting, payments, etc.); estimate the employment associated with these businesses; assess how well OBs are planning for future growth and executing a business plan; and understand priority management concerns. We can use this info to tailor business management trainings and support to help OBs run effectively and grow.				
		2017	2018	
A1	How many outgrowers do you have?	M:__ F:__	M:__ F:__	# outgrowers
A2	Under USAID's ADVANCE project, how many outgrowers did you support?	M:__ F:__	M:__ F:__	
A3	How many of these outgrowers are youth?	M:__ F:__	M:__ F:__	
A4	Are you supporting other farmers on another project?	1) Yes 2) No		
A5	Is your business formally registered?			1 = yes 2 = no
A6	Do you keep records?			1 = yes 2 = no
A7	What system do you use to keep records?			1. Prof. software 2. Paper 3. Book. 4. Excel spreadsheet 5. In my head

A8	Does your outgrower business use a computer?			1 = yes, 2 = no
A9	Do you receive payments using mobile money?			1 = yes, 2 = no
A10	Do you make payments using mobile money?			1 = yes 2 = no (move to A12)
A11	What percentage of your outgrower base do you pay using mobile money?			% of outgrowers
A12	What system do you use to keep track of credits, orders, and payments?			1. Prof. software 2. Paper 3. Book. 4. Excel spreadsheet 5. In my head
A13	Is the system you currently use for keeping records working well for you?			1 = yes 2 = no
A14	How is your office management setup?	1) Management functions not undertaken 2) Business owner has no other employee for management position and conducts all management functions 3) Business owner relies on adhoc unpaid support to complete managerial duties 4) Business owner relies on regular unpaid (or remunerated) support to complete managerial duties 5) Business owner relies on at least one paid part-time staff to complete managerial duties 6) Business owner relies on more than one paid full-time staff to complete managerial duties		
A15	How is your field management setup?	1) Has no field staff working with farmers 2) Relies on temporary, unpaid field staff in an adhoc manner to organize and attend to farmers 3) Relies on temporary, unpaid field support to organize and attend to smallholders		

		4) Business owner relies on at least one paid part-time field staff to organize and attend to farmers 5) Business owner relies on **<u>one</u>** paid full-time field staff to organize and attend to farmers 6) Business owner relies on **<u>more than one</u>** paid full-time field staff to organize and attend to farmers		
A16	How many **permanent, full-time** staff work for you?	2017	2018	
	a. Management-level staff	M:__ F:__	M:__ F:__	# staff
	b. Accountant, bookkeeper, shop keeper	M:__ F:__	M:__ F:__	# staff
	c. Field agents	M:__ F:__	M:__ F:__	# staff
	d. Tractor operator & assistant	M:__ F:__	M:__ F:__	# staff
	e. Security & other	M:__ F:__	M:__ F:__	# staff
A17	Did any of your permanent staff leave your employment?			1 = yes 2 = no (move to A19)
A18	If yes, provide the breakdown	M:__ F:__	M:__ F:__	
A19	How many full-time positions are occupied by youth (<30yrs)	M:__ F:__	M:__ F:__	# positions
A20	How many **temporary** staff work for you?			
	a. Management-level staff	M:__ F:__	M:__ F:__	# staff
	b. Accountant, bookkeeper, shop keeper	M:__ F:__	M:__ F:__	# staff
	c. Field agents	M:__ F:__	M:__ F:__	# staff
	d. Tractor operator & assistant	M:__ F:__	M:__ F:__	# staff
	e. Security & other	M:__ F:__	M:__ F:__	# staff
A21	How many **part-time** positions are occupied by youth (<30yrs)?	M:__ F:__	M:__ F:__	# positions
A22	What was the average length of employment (months) of **temporary workers**?	____	____	# Months
A23	Did you provide/invest in any training for your staff?			1 = yes 2 = no
A24	Do you undertake strategic, business, and annual planning?			1 = yes 2 = no
A25	If yes, indicate exactly what you do	1) No strategic, business, or annual plans on record		

		2) No strategic business plan but operates with annual plans without full budgeting 3) No strategic business plan but operates with fully budgeted annual plans on record 4) No strategic plan but has a business and fully budgeted annual plan on record 5) Strategic plan expired but has a business and fully budgeted annual plan on record 6) Has strategic, business, and annual plans on record		
A26	Do you set aside a regular time to plan for the next year?			1 = yes 2 = no
A27	Do you think your planning process is effective?			1 = yes 2 = no
A28	Do you have clear goals for your business to achieve in the next 3 years?			1 = yes 2 = no
A29	If so, what are they?			
1. Expand to a new geographic area 2. Branch out into a new commodity 3. Offer a new service to existing suppliers 4. Cutting costs of production to boost profit 5. Increasing price of product to boost profit 6. Other, specify				
A30	If USAID's ADVANCE project could do one thing this year to help you manage your business operations better—not including any type of financial support—what would it be?			
		2017	2018	
A31	Did you invest in land or buildings?			1 = yes 2 = no (move to A33)
A32	If yes, how much did you invest in land and buildings?			GHS
A33	Did you purchase any vehicles or transport?			1 = yes 2 = no (move to A35)
A34	If yes, how much did you invest in vehicles or transport?			GHS
A35	Estimate the total amount (GHS) of **any other capital investment** you have made into your business.			GHS
A36	What degree of stress or concern do any of the following create for you and your business?			

	1. Outgrower loyalty (side-selling, repayment)		1 = None 2 = Little 3 = Some concern 4 = A lot of concern
	2. Logistics and transportation		
	3. Finding ways to grow your business		
	4. Reducing product spoilage		
	5. Providing for the family (time, money)		
	6. Losing buyers to new market actors		
	7. Losing suppliers to new market actors		
	8. Finding supply to fill big orders		
	9. Getting the best price		
	10. Complying with government regulations		
	11. Meeting buyer requirements		
	12. Lack of information		
	13. Lack of networks/business relationships		
	14. Harassment and discrimination		
	15. Safety concerns (self and business property)		
	16. Family pressures		
	17. Community pressures		
	18. Finding and retaining quality staff		
	19. Access to financial services		
	20. High costs of inputs		
A37	Which of the following is the most significant obstacle?		1–20 in list above
A38	Have you considered how day-to-day management will run after retirement (succession plan)?	1) Business owner has no one in mind, has not considered the idea 2) Business owner has someone in mind but has not made a decision and not informed the person; person not working with him/her 3) Business owner has more than one candidate successor; has made a decision; not informed the person; and person is not working with him/her 4) Business owner has more than one candidate; has made a decision, informed one of the persons; person is not working with him/her 5) Business owner has more than one candidate; has made a decision, informed	

		one of the persons; person is working with him/her 6) Business owner has more than one candidate; has made a decision, informed more than one of the persons; more than one possible successor is working with him/her

B. NETWORK MAPPING

The objective of this section is to map the network of relationships of the outgrower business. It is essential to be as comprehensive as possible to best represent the linkages that have developed. You should go through the list of organizations, businesses, etc. sequentially (1–18) and ask questions such as "From whom do you buy your inputs?" Then list the name of the entity, label them as 1) wholesaler or 2) retailer, then identify the type of linkage, is it just buying and selling, or do they give you finance, market info, etc. Finally characterize the strength of the relationship as **1–high, strong, good relationship or 3–low, not strong relationship (measure: adherence to agreed terms and conditions by the** parties, whether formal or informal) etc.

B1 Please list organizations, businesses, consultants, or other individuals you have worked with over the past year, and the impact of that relationship on your business. For type, refer to table below:

1 Distributor/wholesaler	7 Consultant, advisor	13 Food processor
2 Retail input supplier	8 Bank	14 Livestock (incl. feed)
3 Equipment manufacturer	9 NBFI (MFI, CU)	15 Multinational buyer
4 Seed grower	10 NGO or donor Project	16 Other buyer
5 Service provider	11 Professional association	17 Media, radio, internet
6 Government agency	12 Social group or colleague	18 OB network
		19. Aggregators
		20. Other

	Name of Entity	Type (see table)	Nature of relationship (check all that apply)						Impact 1 = High 2 = Med 3 = Low
			Buy/Sell	Finance	Market Info	Advisory / Extension	Other	Strength of relationship 1 = high 2 = medium 3 = low	
a									
b									
d									
e									
f									
g									
h									
i									

j									
k									
l									
m									
n									
o									

B2	How do you compare the number of business networks between 2016 and 2018?	1 = No change 2 = Increased 3 = Decreased
B3	How do you compare the strength of business networks between 2016 and 2018?	1 = No change 2 = Increased 3 = Decreased
B4	Are you a member of an OB network/association?	1 = Yes 2 = No (move to B6)
B5	If yes, what is your level of involvement in this network/ association?	1) Not a member of any OB association or network 2) A member of an OB association or network but dormant (no meeting attendance) 3) A casual member of an OB association or network (attends 25 percent of meetings) 4) An active member of an OB association or network (attends more than 50 percent of meetings) 5) Executive member of an OB association or network at the zonal or regional level
B6	Do you undertake/sponsor development activities in the community?	1 = Yes 2 = No (move to Section C)
B7	If yes, what have you done/undertaken?	1) Has not been considered 2) Has been considered, but not practiced 3) Have funded 1 CSR in the last 10 years 4) Have funded 1 CSR in the last 5 years 5) Have funded 1 CSR in the last 3 years 6) Have funded 1 CSR annually in the last 3 years 7) Other, specify

C. FINANCING				
The objective of the financing section is to understand the source of business funds. Oftentimes, firms will list capital as their most significant constraint but underlying that are a source of potential issues—whether payment terms with buyers or suppliers and/or inability to meet bank requirements. This section seeks to understand why finance is a constraint.				
C1	Where do you get money for your day-to-day operations?			
		2017	2018	
	a. Internal funds or retained earnings %			%
	b. Borrowed from banks: private and state-owned			%
	c. Borrowed from NBFI (MFI, CU)			%
	d. Purchases on credit			%
	e. Advances from customers			
	f. Friends, family, other informal sources			%
	g. Buyer schemes			
	h. Input dealer lending cash			
	i. Other, specify,			
	CONFIRM TOTAL = 100%	100	100	%
C2	Do you have a checking or savings account?			1 = yes, 2 = no
C3	Do you have a line of credit or loan from a bank, NBFI?			1 = yes, 2 = no (move to C6)
C4	When was the line of credit or loan approved?			Month/Year
C5	What type of collateral was required? Check all that apply			
	a. Land, buildings, ownership of establishment			1 = yes, 2 = no
	b. Machinery, equipment including movables			1 = yes, 2 = no
	c. Accounts receivable (ex. contract, purchase order)			1 = yes, 2 = no
	d. Inventories (stored product)			1 = yes, 2 = no
	e. Personal assets of the owner (house)			1 = yes, 2 = no
	f. Other forms of collateral			1 = yes, 2 = no
C6	Did you apply for a loan and was rejected?			1 = yes,

				2 = no (move to C8)
C7	What were the reasons cited by the bank for the rejection? Check all that apply (AND MOVE TO C9)			
	a. Lack of collateral			1 = yes, 2 = no
	b. Lack of documentation (financials, etc.)			1 = yes, 2 = no
	c. Lack of a business plan			1 = yes, 2 = no
	d. Lack of credit history			1 = yes, 2 = no
	e. Business activity perceived as too risky			1 = yes, 2 = no
	f. Amount requested was too large			1 = yes, 2 = no
	g. Other, specify			1 = yes, 2 = no
C8	If you did not apply for a loan, what were the main reasons? Check all that apply.			
	a. No need, sufficient working capital			1 = yes, 2 = no
	b. Application procedures too complex			1 = yes, 2 = no
	c. Interest rates were unfavorable			1 = yes, 2 = no
	d. Collateral requirements were too high			1 = yes, 2 = no
	e. Size of loan and maturity was insufficient			1 = yes, 2 = no
	f. Did not think would be approved			1 = yes, 2 = no
	g. Other			1 = yes, 2 = no
C9	Do you have financial statements?			1 = no 2 = yes, unaudited 3 = yes, audited

D-I BUSINESS UNITS
Sections D-List different potential business units. As we know, many OBs do not keep records, so the objective is to cost out the elements of the different business activities to best model their profitability. Though imperfect, this approach does provide an approximate estimation. Responses from these questions will be plugged into an Excel spreadsheet to do more complete calculations.

It is important to answer every question, as each contains a variable necessary to perform these calculations. For example—why you might not care how long a tractor lasts before it breaks down. This figure is used to come up for an estimate of annual depreciation, which is the most important cost of running a plowing service.

Within each set of questions, we also want to understand several indicators of systemic change. For example, we want to know whether an outgrower business is growing its operations (i.e., investing in new equipment, expanding services) or if they are simply maintaining their operations. We also want to know whether the suppliers or buyers of an outgrower business are consistent between seasons (so-called relationship churn), or whether there is little loyalty or consistency. Finally, we want to know if transactions are on the spot (cash basis) or whether there is any financing between firms, with the latter an indicator of stronger relationships and more integrated supply chains.

D. TRACTOR SERVICES				
		2017	2018	
D1	Did you provide tractor services?			1 = yes 2 = no (move to D25)
D2	How many tractors did you own?			Tractors
D3	How many new or used tractors did you buy?			Tractors
D4	What was the model of tractor(s) that you purchased?			Model
D5	[*If purchased*] How much did you pay per tractor?			GHS/Tractor
D6	How many tractors broke down (no longer in use)?			Tractors
D7	How many times did your tractor break down (that needed repairs)?			# of times
D8	How much did you spend repairing tractors?			GHS
D9	How long does a tractor last you before it breaks (no longer usable)?			Years
D10	How many acres of land did you plow?			Acres
D11	How many clients did you provide plowing services for?	M:__ F:__ Youth:__	M:__ F:__ Youth: __	Persons
D12	Approximately how many of the farmers who received plowing services in 2017 also received plowing services in 2018?			1. All (95+%) 2. Most (66+%) 3. Half (50+%) 4. Few (33+%) 5. None (<5%)
D13	Approximately how many of the farmers that received plowing services in 2018 do you intend to provide services in 2019?			1. All (95+%) 2. Most (66+%) 3. Half (50+%)

				4. Few (33+%) 5. None (<5%)
		2017	2018	
D14	How much did you charge your clients?			1 = Upfront (move to D20) 2 = Credit 3 = Both
D15	If credit, what % of total services did you provide on credit?	M:__ F:__ Youth:__	M:__ F:__ Youth:__	% provided on credit
D16	Did you charge in-kind or cash for services on credit?			1. In-kind 2. Cash
D17	How much did you charge for these services on credit? (Convert in-kind/barter to equivalent GHS value)			GHS
	a. Plowing			
	b. Harrowing			
	c. Planting/seeding			
	d. Agrochemical application			
	e. Haulage			
	f. Other, specify			
D18	What was the repayment rate for services provided on credit?			
	a. Number of farmers			% of farmer
	b. Debt recovered			% of debt owed you
D19	What were the reasons for non-repayment?			
	a. Farmer earned a poor harvest			1 = Very frequent 2 = Somewhat frequent 3 = Less frequent
	b. Broke contract / side-sold			
	c. Other reasons, specify			
D20	If paid upfront, how much did you charge for these services per unit? (Convert in-kind/barter to equivalent GHS value)			GHS/unit
	a. Plowing			
	b. Harrowing			
	c. Planting /seeding			
	d. Agrochemical application			
	e. Haulage			
	f. Other (specify)			

D21	How much did you pay a tractor operator per acre plowed?			GHS
D22	How much did you spend on fuel to plow an acre?			GHS
D23	List any other variable costs incurred (items)			
D24	How much did you spend on these other variable costs per acre?			GHS
D25	What are your other plans for 2019?			
	a. New geographical location			
	b. Increased number of client farmers			
	c. Offering new services/products			
	d. Cutting costs of production to boost profits			
	e. Increasing price of product to boost profit			

E. PREFINANCING (INPUT CREDIT)				
		2017	2018	
E1	Did you prefinance inputs for outgrowers?			1 = yes 2 = no (MOVE TO Section E6)
E2	How many farmers did you prefinance?			# of farmers
E3	What percentage of these farmers were women/youth?	Women:__ Youth:__	Women:_ Youth:_	%
E4	Approximately how many of farmers that you prefinanced in 2017 did you also prefinance in 2018?			1. All (95+%) 2. Most (66+%) 3. Half (50+%) 4. Few (33+%) 5. None (<5%)
E5	Approximately how many farmers that you prefinanced in 2018 will you prefinance again in 2019? (**move to E7**)			1. All (95+%) 2. Most (66+%) 3. Half (50+%) 4. Few (33+%) 5. None (<5%)
E6	What were your **top three (3) reasons** for not prefinancing? (**move to E22**)	2017	2018	
	a. Lacked capacity and funding			Rank (1^{st}, 2^{nd}, and 3^{rd})
	b. Farmers defaulted on previous loans			
	c. Farmers no longer required the service			
	d. Other, specify			
E7	What total cost of seeds did you prefinance?			GHS
E8	What mark-up did you charge on prefinanced seeds?			GHS

E9	What total cost of fertilizer did you prefinance?			GHS
E10	What mark-up did you charge on prefinanced fertilizer?			GHS
E11	What total cost of pesticides did you prefinance?			GHS
E12	What mark-up did you charge on prefinanced pesticide?			GHS
E13	List any other inputs you prefinanced			
E14	What total cost of OTHER inputs did you prefinance?			GHS
E15	What mark-up did you charge on OTHER inputs?			GHS
E16	Were prefinancing demands from women different than for men?			1 = yes 2 = no (move to E18)
E17	If yes, please specify below			
E18	Were prefinancing demands from youth different than for men?			1 = yes 2 = no (move to E20)
E19	If yes, please specify below			
E20	What was the repayment rate on prefinanced inputs?			
	a. Number of farmers			% of farmers
	b. Debt recovered			% of debt owed you
E21	What were the reasons for non-repayment?			
	a. Farmer had a poor harvest			1 = Very frequent 2 = Somewhat frequent 3 = Less frequent
	b. Farmer broke contract / side-sold			
	c. Other reason, specify			
E22	What are your other plans for 2019?			
	a. New geographical location			
	b. Increased number of client farmers			
	c. Offering new services/products			
	d. Cutting costs of production to boost profits			
	e. Increasing price of product to boost profits			
	f. Other, specify			

F. RETAILING INPUTS

FA: 2017							
F1A	Did you sell/ retail any inputs?						1 = Yes 2 = No (move to FB: 2018)
F2A	In the table below indicate any material inputs you sold						
	Input Name	Unit 1 = Kg 2 = MT 3 = Liters 4 = Milliliters (Mils) 5 = Grams 6 = Other	# Units Sold	Purchase Price	Bought (note) 1 = own cash 2 = consignment 3 = <30d advance 4 = 30+ d advance	Inventory Turnover (note) (annual)	Sell Price
a							
b							
c							
d							
r							
f							
g							
h							
i							
j							
k							
l							
F3A	Recall the last order you placed from a supplier. How much did you pay in **transport costs** for those inputs?					GHS (note)	
F4A	What is the approximate cost of inputs in the last order?					GHS	
F5A	What would you estimate as the approximate % of the value of the orders that goes to transport costs?					%	

FB: 2018							
F1B	Did you sell/retail any inputs?						1 = yes 2 = no (move to FC: 2019)
F2B	In the table below indicate any material inputs you sold						
	Input Name	Unit 1 = Kg 2 = MT 3 = Liters	# Units Sold	Buy Price	Bought (note) 1 = own cash 2 = consignment	Inventory Turnover (note) (annual)	Sell Price

		4 = Milliliters (Mils) 5 = Grams 6 = Other			3 = <30d advance 4 = 30+ d advance		
a							
b							
c							
d							
r							
f							
g							
h							
i							
j							
k							
l							
F3B	Recall the last order you placed from a supplier. How much did you pay in transport costs for those inputs?					GHS (note)	
F4B	What is the approximate cost of inputs in the last order?					GHS	
F5B	What would you estimate as the approximate % of the value of the orders that goes to transport costs?					%	

FC: 2019							
F1C	Do you plan to sell/ retail any inputs in 2019?					1 = yes 2 = no (move to Section G)	
F2C	In the table below, indicate any material inputs you plan to sell in 2019						
	Input Name	Unit 1 = Kg 2 = MT 3 = Liters 4 = Milliliters (Mils) 5 = Grams 6 = Other	# Units Sold	Buy Price	Bought (note) 1 = own cash 2 = consignment 3 = <30d advance 4 = 30+ d advance	Inventory Turnover (note) (annual)	Sell Price
a							
b							
c							
d							

r							
f							
g							
h							
i							
j							
k							
l							

F3C	What would you estimate as the approximate % of the value of the orders that will go into transport costs?		%

NOTE ON CONSIGNMENT VS. CASH: As this is an important distinction, you should disaggregate based on whether a good is bought with cash or on consignment. For example, Syngenta offers a consignment offer where the OB makes 10 percent on sale of every bag of seed. They provide the OB with stock and s/he doesn't need to put any cash down. This means the OB doesn't tie up any of his/her working capital and can move the product quickly. The alternative is to stock inputs using the OB's cash from Pioneer. S/he is able to charge a margin of 30 percent, but must tie up their capital to do so. Which option is preferable (one or the other or both or neither)? It depends on a formula that considers working capital, cost of credit, margin, turnover, and sales volume. Make sure to answer all the columns to help shape the financial analysis.

NOTE ON TURNOVER: Turnover is an important variable as it is one of the critical drivers of financing needed for buying and selling. Typically, enumerators should ask the question for a particular input. For example, in reference to seeds, how many orders did you place in order to replenish your stock? How many times did you cycle over your stock? For products that sit on the shelf for a long-time (ex. larger equipment), one might expect a turnover of 1 or perhaps 1.5, that is Obs might only replace an item one time in a year. If a piece of equipment costs $5,000, has the OB tied up $5,000 of their capital to stock that item? In comparison, an OB might place up to 10 orders for seeds throughout a year to replenish their stock. Let's say the OB also sells $5,000 worth of seeds. With a turnover of 10, the OB only needed $500 to sell that amount. Therefore, It is much less costly (in terms of working capital) to stock seeds as opposed to equipment. MAKE SURE TO INCLUDE AN ESTIMATE FOR TURNOVER FOR EACH PRODUCT. Without this estimate, the study cannot determine working capital needed.

NOTE ON TRANSPORT: There is really no great way to do this without records, so the preference is to come up with a percentage of cost of goods sold. Ask the question two ways. The first is instance-based, drawing entirely from the last purchase (this can distort based on the bulk of the order, as different products often have different transport costs). The other is an estimation based on the OB reporting. Compiling all the responses from multiple OBs and calculating the average is recommended.

G. SHELLING / THRESHING				
		2017	2018	
G1	Did you provide shelling/threshing services?			1 = yes 2 = no (move to G19)
G2	If yes, how many farmers did you provide shelling/threshing services for?	M:__ F:__	M:__ F:__	# of farmers
G3	How many shellers/threshers did <u>you own</u>?			Threshers

G4	How many new or used shellers/threshers did you buy?			Threshers
G5	[*If purchased*] How much did you pay per sheller/thresher?			GHS/ Threshers
G6	How many shellers/threshers broke (no longer in use)?			Threshers
G7	How many times did your shellers/threshers break down (that needed repairs)?			# of times
G8	How much did you spend repairing shellers/threshers?			GHS
G9	How long does a sheller/thresher last you before it breaks (no longer usable)?			Years
G10	What is the standard measure for shelled/threshed product 1) 120 kg bag 2) 100 kg bag 3) 50 kg bag			1 Bag
G11	How many bags of product did you shell/thresh?			Bags
	a. Rice			Bags
	b. Maize			Bags
	c. Soybean			Bags
G12	How much did you charge for shelling/threshing services?	2017	2018	
	1 = GHS/bag			
	2 = No. of rice bags			
	3 = No. of maize bags			
	4 = No. of soybean bags			
G13	Approximately how many of the farmers who received shelling/threshing services in 2017 also received services in 2018?			1. All (95+%) 2. Most (66+%) 3. Half (50+%) 4. Few (33+%) 5. None (<5%)
G14	Approximately how many of the farmers who received shelling/threshing services in 2018 will you provide services in 2019?			1. All (95+%) 2. Most (66+%) 3. Half (50+%) 4. Few (33+%) 5. None (<5%)
G15	How much do you pay an operator per bag?			GHS/bag
G16	How much do you spend on fuel per bag			GHS/bag
G17	List any other variable costs incurred per bag (items)?			

G18	How much did you spend on other variable costs per bag			GHS/bag
G19	What are your other plans for 2019			
	a. New geographical location			
	b. Increased number of client farmers			
	c. Offering new services/products			
	d. Cutting costs of production to boost profits			
	e. Increasing price of product to boost profits			
	f. Other, specify			

H. MARKETING OUTPUTS								
HA: 2017								
HA1	Did you aggregate/market any products?						1 = yes 2 = no (move to HA8)	
HA2	Indicate quantity of output sold by source							
	1. Produce from own farm						1. 120 kg bag 2. 100 kg bag 3. 50 kg bag	
	4. Produce from outgrower credit payback						1. 120 kg bag 2. 100 kg bag 3. 50 kg bag	
	5. Outright purchase from outgrower						1. 120 kg bag 2. 100 kg bag 3. 50 kg bag	
	6. Selling on behalf of outgrower without outright purchase						1. 120 kg bag 2. 100 kg bag 3. 50 kg bag	
	7. Purchasing outside the outgrower group						1. 120 kg bag 2. 100 kg bag 3. 50 kg bag	
HA3	Approximately how many farmers did you buy from?					M:__ F:__		
HA4	In the table below, indicate any outputs you sold							
	Product 1 = maize 2 = soybean 3 = rice 4 = other, specify	(note)	Units 1 = Kg 2 = MT 3 = Liters 4 = Milliliters (Mils) 5 = Grams 6 = Other	Units Sold	Purchase Price	Bought on 1 = own cash 2 = consignment 3 = <30d advance 4 = 30+ d advance	Inventory Turnover (note)	Sell Price

		No agreement						
		Verbal agreement						
		Written contract						
		Stored/off-season						
		No agreement						
		Verbal agreement						
		Written contract						
		Stock/off-season						
		No agreement						
		Verbal agreement						
		Written contract						
		Stored/off-season						
HA5	Recall the last order you placed from a supplier, how much did you pay in transport costs for that order?						GHS	
HA6	What is the approximate cost of the goods in the last order?						GHS	
HA7	What would you estimate as the approximate % of the value of the goods that goes to transport costs?						%	
HA8	Did you renovate or construct any warehouses?						1 = yes 2 = no (move to HA10)	
HA9	If yes, how much did you spend on warehouses?						GHS	
HA10	How much product did you store in warehouses?						Mt	
HA11	Did you have any products certified by the GGC?						1 = yes 2 = no (move to HA13)	
HA12	If yes, how much product was certified?						Mt	
HA13	How do you set the price you offer farmers?						1 = Prevailing market price 2 = Quality 3 = Other (explain below)	

HA14	Do you offer higher prices for better quality grain?		1 = yes 2 = no (move to HB:2018)
HA15	Do you use clear quality standards & grades to set different prices, or is the quality assessment ad hoc at time of purchase?		1 = Standards & grades 2 = At time of purchase

H. MARKETING OUTPUTS								
HB: 2018								
HB1	Will you aggregate/market any products?						1 = yes 2 = no (move to HB 8)	
HB2	Indicate quantity of output you are likely to sell by source							
	a. Produce from own farm						1. 120 kg bag 2. 100 kg bag 3. 50 kg bag	
	b. Produce from outgrower credit payback						1. 120 kg bag 2. 100 kg bag 3. 50 kg bag	
	c. Outright purchase from outgrower						1. 120 kg bag 2. 100 kg bag 3. 50 kg bag	
	d. Selling on behalf of outgrower without outright purchase						1. 120 kg bag 2. 100 kg bag 3. 50 kg bag	
	e. Purchasing outside the outgrower group						1. 120 kg bag 2. 100 kg bag 3. 50 kg bag	
HB3	Approximately how many farmers would you buy from?					M:__ F:__		
HB4	In the table below indicate any outputs you would sell							
	Product 1 = maize 2 = soybean 3 = rice 4 = other, specify	(note)	Units 1 = Kg 2 = MT 3 = Liters 4 = Milliliters (Mils) 5 = Grams 6 = Other	Units Sold	Purchase Price	Bought on 1 = own cash 2 = consignment 3 = <30d advance 4 = 30+ d advance	Inventory Turnover (note)	Sell Price
		No agreement						
		Verbal agreement						
		Written contract						

		Stored/off-season						
		No agreement						
		Verbal agreement						
		Written contract						
		Stock/off-season						
		No agreement						
		Verbal agreement						
		Written contract						
		Stored/off-season						

HB5	Recall the last order you placed from a supplier, how much did you pay in transport costs for that order?		GHS
HB6	What is the approximate cost of the goods in the last order?		GHS
HB7	What would you estimate as the approximate % of the value of the goods that goes to transport costs?		%
HB8	Did you renovate or construct any warehouses?		1 = yes 2 = no (move to HB10)
HB9	If yes, how much did you spend on warehouses?		GHS
HB10	How much product did you store in warehouses?		Mt
HB11	Did you have any products certified by the GGC?		1 = yes 2 = no (move to HB13)
HB12	If yes, how much product was certified?		Mt
HB13	Do you know of the Ghana Commodity Exchange (GCX)?		1 = yes 2 = no (move to HB16)
HB14	Did you have any products certified by the GCX?		1 = yes, 2 = no
HB15	If yes, how much product was certified?		Mt
HB16	How do you set the price you offer farmers?		1 = Prevailing market price 2 = Quality 3 = Other (explain below)
HB17	Do you offer higher prices for better quality grain?		1 = yes, 2 = no (move to HB19)

HB18	Do you use clear quality standards & grades to set different prices, or is the quality assessment ad hoc at time of purchase?		1 = Standards & grades 2 = At time of purchase
HB19	What are your other plans for 2019?		
	a. New geographical location		
	b. Increased number of client farmers		
	c. Offering new services/products		
	d. Cutting costs of production to boost profits		
	e. Increasing price of product to boost profits		
	f. Other, specify		

NOTE ON CONSIGNMENT AND TURNOVER: See input retailing section above.

NOTE ON SEGMENTATION: The key for marketing is segmentation. Enumerators should differentiate between the quality of the market channel. This can be done independent of the consideration of a specific buyer (plus this goes in the network analysis section below). Note for stored for off-season, the turnover should be 1. Typically for marketing with agreements/contracts, OBs will have higher turnovers than selling to spot/open market, as they are able to market in bulk. It is important to capture this difference between a price and volume premium. It is common to obsess over price premium (margin per product), but most traders make money through volume premiums, i.e., being able to turn over their product very fast and use less money to sell more product, even at a lower price margin. This is more often a more profitable business model.

I. EXTENSION & TRAINING				
		2017	2018	
I1	Did you help organize any savings group?			1 = yes 2 = no (move to I4)
I2	If yes, how many savings groups did you organize?			
I3	If yes, approximately how many members per group?	M __ F __	M __ F __	
I4	Did you help organize any producer groups?			1 = yes 2 = no (move to I7)
I5	If yes, approximately how many groups?			#
I6	If yes, approximately how many members per group?	M __ F __	M __ F __	#
I7	Did you establish any demonstration plots?			1 = yes 2 = no (move to I10)
I8	If yes, how much did you spend on demo plots?			GHS
I9	If yes, how many farms benefited from demo plots?			#
I10	Did you provide any market information to suppliers?			1 = yes 2 = no (move to I12)
I11	If yes, how many suppliers received market information?	M __ F __	M __ F __	#

I12	Did you mentor any other outgrower businesses?			1 = yes 2 = no (move to I5)
I13	Describe how you mentored in the row below			
I14				
I15	What are your plans for 2019?			
	1. Expand into new geographical location			
	2. Expand mentorship program			
	3. Introduce improved extension approaches			
	4. Cutting cost of production to boost profits			
	5. Increasing price of product to boost profit			
	6. Other, specify			