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## **AFRICAN COCOA INITIATIVE**

### **An Assessment of the Agrochemical Input Delivery for Cocoa in Ghana**

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## 1.0 Country Assessment

### 1.1 Ghana

#### 1.1.1 Approved Agro-inputs for Cocoa Production

In Ghana, all agrochemicals used on cocoa must be tested and approved for use by the Cocoa Research Institute of Ghana (CRIG). CRIG, working with the Input Supply Companies, has developed various formulations to suit the fertility status of the cocoa production regions.

Currently, four formulations of granular fertilizer and one liquid fertilizer are approved for use in cocoa production. The input supply companies have branded the fertilizer formulations for sale to farmers. The brands are:

Table 1: Recommended Cocoa Fertilizers

Type of Fertilizer	Common Name	Composition	Rate of Application	Supplier
Granular	Cocofeed	NPK (0-30-20)	375kg/ha	Chemico Ltd
	Asase Wura	NPK (0-22-18) + 9Ca + 7S + 6MgO	375kg/ha	Wienco Ghana Ltd/Yara
	Nitrobor	N (15.4) + Bo (0.3)	-	Yara Ghana Ltd
	Cocoa Master	NPK 1-21-19 +6S + 6MgO +9CaO +1B	-	LouisDreyfus Commodities
Liquid	Sidalco Balanced Nutrient Fertilizer	NPK (10-10-10) + trace elements	-	Sidalco Ltd
	Sidalco Potassium Fertilizer	NPK (6-0-20) + trace elements	-	

CRIG has also recommended three insecticide types to control pests such as Capsid (Mirid) and *Batycoelia thalassina* (Shield bug), and eight fungicide types for the control of black pod (*P. megakarya*). The following are the approved agrochemicals:

Table 2: Approved Cocoa Agro-chemicals

Product	Common Name	Active Ingredient	Supplier
Insecticide	Akatemaster	Bifenthrin 27 g/L	Chemico Ltd
	Confidor	Imidacloprid 200g/L (20%)	Wienco Ghana Ltd
	Actara	Thiamethoxam 250g/kg	Calli Ghana
Fungicide	Champion 80 WP	Copper Hydroxide 77%	Chemico Ltd
	Funguran-OH 50 WP		Dizengoff Gh Ltd
	Nordox Super 75 WG	Cuprous Oxide 86%	Wienco Ghana Ltd
	Nordox 75 WG	Cuprous Oxide 75%	Wienco Ghana Ltd
	Ridomil Gold Plus 66 WP	Metalaxyl-M (6%) and Cuprous Oxide (60%)	Wienco Ghana Ltd
	Metalm 72 Plus WP	Cuprous Oxide + metalaxyl	Kurama
	Fungikill WP	Cupric hydroxide + metalaxyl	Chemico Ltd
	Agro-Comet WP	Cuprous oxide + metalaxyl	Reiss & Co
Kocide 2000 WP	Cupric Hydroxide	Calli Ghana	

### 1.1.2 Main Suppliers of Cocoa Agro-chemicals & Size of Operations

The main agro-input supply companies in Ghana providing fertilizer and crop protection products for cocoa farmers are listed below.

Table 3: Agro-Input Supply Companies

Company	Location	Products	Contact
Yara Ghana Ltd	Bostal Avenue #2 Roman Ridge, Accra	Fertilizer	Tel: +233 302 77 98 54 +233 302 76 79 92
Wienco (Ghana) Limited	No. 14 Narku Ipan Rd, Airport Residential Area Accra	Fungicides Insecticides Fertilizer Sprayers	Tel: +233 302 772251/ 030 2776447/ 030 2773458 Email: <a href="mailto:wienco@wienco.com">wienco@wienco.com</a>
Golden Stork Ghana	Tema	Fungicides Insecticides Fertilizer Sprayers	Tel: +233 303 20 60 60 Email: <a href="mailto:goldenstork@goldenstork.net">goldenstork@goldenstork.net</a>
Chemico Limited	Obedeka Road, Community No 1 Industrial Area, Tema	Fungicides Insecticides Herbicides Sprayers	Tel: +233 303 20 29 91 +233 303 20 29 92 Email: <a href="mailto:chemico@4u.com.gh">chemico@4u.com.gh</a>
Dizengoff (GH) Ltd	North Industrial Area, Opp Ghanaian Times, Accra	Fungicides Insecticides	Tel: +233 302 22 18 31 +233 302 22 18 15
Sidalco Limited	Off Spintex Road, Opposite Manet Court Junction	Fungicides Insecticides Liquid Fertilizer	Tel: +233 24 431 8704 Email: <a href="mailto:info@sidalcoghana.com">info@sidalcoghana.com</a>
Calli Ghana Company Ltd	Tema	Fungicides Insecticides	Tel: +233 303 03 47 18 Email: <a href="mailto:callighana@callighana.com">callighana@callighana.com</a>
Makhteshim Agan	7 Adembra Road, East Cantonments, Accra	Fungicides Insecticides Herbicides	Tel: +233 302 91 61 12 Email: <a href="mailto:info@ma-westafrica.com">info@ma-westafrica.com</a>

**Yara Ghana Ltd.** was established in 2007, as a subsidiary of Yara International ASA, to strengthen the quality and depth of input supply and related services along agricultural value chains to increase the productivity of Ghanaian farmers. Yara as the world's leading mineral fertilizer company has taken a leadership position in the fertilizer market in Ghana and has invested in a bulk blending fertilizer production facility in Tema.

**Wienco (Ghana) Limited**, established in 1979 is jointly owned by Dutch and Ghanaian Shareholders. As an agricultural company, Wienco specializes in the importation and distribution of high quality agro-inputs that meet international standards.

**Louis Dreyfus Commodities** (Golden Stork) is a world leader in the processing of agricultural products and the merchandising of a diverse range of commodities. The company provides a wide range of fertilizers to farms and plantations, suitable for all tropical crops and is able to manufacture any type of blend according to the crop and soil specifications.

**Dizengoff (GH) Ltd**, a subsidiary of Balton CP Ltd based in England, has operated in Ghana for over 40 years and deals in 3 main specialized areas in line with its corporate objective of providing expert after sales services. Its areas of specialization are agricultural, Motorola communications and electro-mechanical divisions. Under its agricultural division, the company sells various types of fertilizers and agrochemicals to farming communities all over the country.

**Chemico Limited** is a wholly Ghanaian-owned company which commenced business in 1976 as a management buyout of the agency and distribution interest of Imperial Chemical Industries (ICI) in Ghana. It is one of the 2 agrochemical formulators in Ghana and the first company to establish a fertilizer blending plant in Ghana.

**Calli Ghana Limited**, a subsidiary of Arysta Life Science Group, was established in July 2003 and mandated to import and distribute agro-chemicals and spraying equipment as a means of supporting Ghana's agricultural sector.

### **1.1.3 Fertilizer Distribution Channel**

In the early 1990s, Ghana liberalized the fertilizer sector by abolishing the Government monopoly in fertilizer imports and distribution. Since then, many actors (importers, distributors, and retailers) have entered the market with relative ease. Prior to the enactment of Plants and Fertilizer Act of 2010, the fertilizer sector was not regulated under any specific act. The Crop Services Directorate of the Ministry of Food and Agriculture (MoFA) and Environmental Protection Agency (EPA) shared the regulatory function, with importers, distributors, and retailers having to register prior to engaging in the sector. Very little monitoring of fertilizer quality within the country was undertaken. Under the new Act, the regulatory responsibilities are streamlined with the creation of a new fertilizer regulatory division under the PPRSD. This Act and its regulation will be critical for increased participation of private sector firms, because over the past two years, despite increases in fertilizer imports, there have been instances of adulterated products in the market, including violation of truth in labelling in terms of contents, quantity, and quality (Fuentes, Johnson & Bumb, 2011).

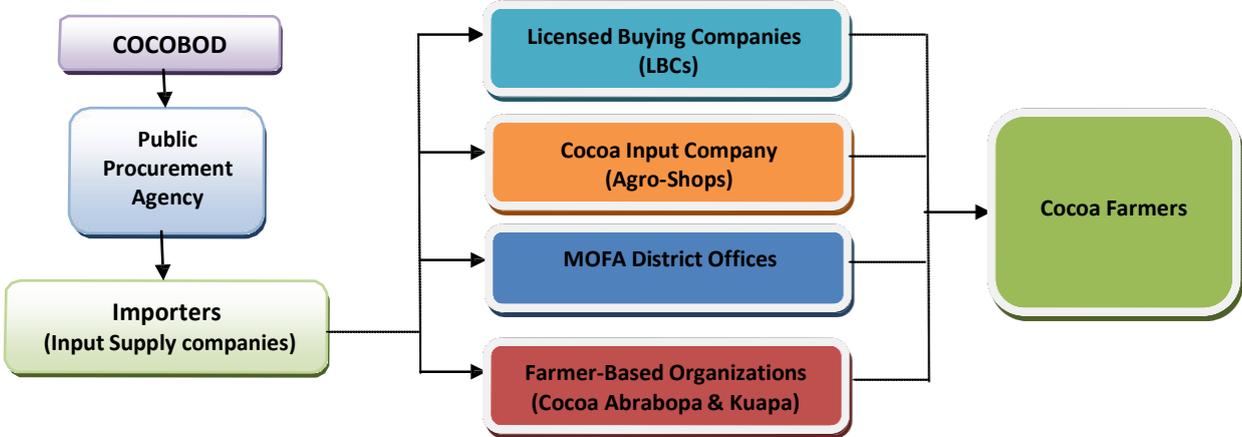
Landing costs for fertilizer are high (\$78/ton in 2010) due mainly to Ghana's inefficient portside harboring and offloading operations. At the port of Tema, where most import cargo is handled, the port authority's monopoly in providing labour for the unloading and bagging of fertilizers adds unnecessary additional cost for demurrage and stevedoring. The limited berth space and shallow depth also contribute to delays in handling cargoes.

The Ghanaian fertilizer sector generally has been completely liberalized and the government is not involved in any major way in procuring, distributing, and retailing of fertilizer. All

inorganic fertilizer in the country is imported ready for use by private importers. Four key importers dominate the fertilizer supply chain: Yara/Wienco, Chemico, Golden Stork, and Dizengoff. They accounted for 95 per cent of fertilizers imported in 2009. Among them, Yara/Wienco seems to have the longest and most dominant presence in the country in terms of market share.

Specially blended fertilizer for cocoa is procured by COCOBOD through a tender process for distribution to cocoa farmers. Averagely, COCOBOD purchases 50,000 MT of cocoa fertilizer for distribution - annually. Currently, the Government of Ghana subsidizes cocoa fertilizer to the tune of about 58% of the wholesale price. The farm gate price per 50kg bag of cocoa fertilizer in 2012 is GH¢33.00 (\$19.76) while COCOBOD purchased at the wholesale price of GH¢80.00 (\$48) per bag of 50kg. The subsidy is a deliberate policy by government, instituted since 2002, to encourage farmers to use fertilizer to address the issue of declining soil fertility in most cocoa producing areas and also help rejuvenate old cocoa farms to improve productivity. About 47% of cocoa farmers in Ghana use fertilizer, though at sub-optimal levels (66.5kg/ha as against recommended 250kg/ha).

Government through COCOBOD is responsible for the distribution of the subsidized fertilizer through some selected licensed buying companies (LBCs), Cocoa Input Company (Agro-shops), Ministry of Food and Agriculture district offices in the cocoa producing regions and some farmer-based associations (such as Kuapa Kokoo and Cocoa Abrabopa Association). The flow of subsidized cocoa fertilizer along the distribution channel is as follows:



COCOBOD through the Public Procurement Agency select input supply companies to supply fertilizer from their warehouses to the designated cocoa fertilizer sales/distributed outlets.

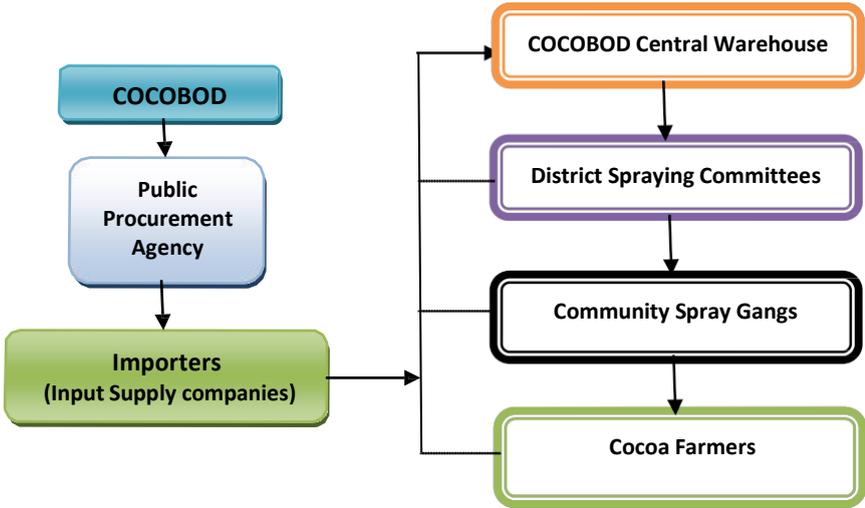
Though this arrangement is expected to make fertilizer available to cocoa farmers, most farmers are unable to access fertilizer during the season because the distribution coverage through the LBCs and the other selected channels does not reach majority of cocoa farmers. For example there are currently 21 LBCs of which only 5 major ones participate in the distribution of fertilizers. There are also 70 agro-shops of the Cocoa Input Company in the major cocoa growing regions that carry cocoa-specific agri-inputs in addition to 62 MoFA district offices identified to reach cocoa farmers with fertilizer in 6 cocoa regions. Even if all

these outlets are supplied with fertilizer for distribution to farmers, it adds up to only 132 sales points compared to over 2,000 general agrodealer sales points in the 6 cocoa regions.

This arrangement by COCOBOD to play a key role in the distribution of fertilizer also makes investment in development of channels for cocoa fertilizer distribution by input supply companies challenging since they cannot sell fertilizer above the subsidized rate at the retail end.

**1.1.4 Agro-chemicals Distribution Channels**

All agrochemicals for the control of cocoa pathogens must be approved by Cocoa Research Institute of Ghana (CRIG). The approved agro-chemicals for cocoa as listed in Table 2 above are used mainly for the Cocoa Diseases and Pest Control (CODAPEC) program also known as the “Mass Spraying”. The Ghana COCOBOD during the 2001/2002 cocoa season introduced CODAPEC program as part of efforts to assist all cocoa farmers in the country to combat the Capsid/Mirid and the Black Pod disease. COCOBOD is subsidizing 100% of the insecticides and fungicides for the mass spraying program. The flow of products for spraying of farmers’ field is as follows:



Again with respect to agrochemicals, COCOBOD through the Public Procurement Agency select input supply companies to supply agrochemicals to COCOBOD’s central warehouse from where the products are distributed to the district warehouses to be used for the mass spraying program.

Though the program is a laudable one, pilfering and diversion of inputs at various levels remain the biggest challenges among others. These malpractices occur in spite of the fact that all the pesticides have the inscription “PACKED FOR CODAPEC, NOT FOR SALE” boldly printed on them. This situation is so because of the unavailability of the approved agrochemicals at the agrodealer retail point. The chemicals can only be accessed through COCOBOD channels. In theory every cocoa farmer is expected to benefit from at least two farm sprays during the cocoa season. However, for effective control of cocoa pathogens farmers require more than the two sprays provided by COCOBOD. They require on the average 8 sprays of both fungicide and insecticide.

There is also a selective and limited distribution of the approved agrochemicals through two farmer-based organizations, namely Cocoa Abrabopa Association and Kuapa Kokoo Farmers Union, to cocoa farmers within their umbrella. The two associations respectively procure the agro-inputs from the input supply companies directly for sale on credit to their members totaling about 40,000. The products supplied to farmers through this channel are packaged differently and do not bear the “Not for Sale” markings.



Under these two input credit schemes, participating farmers can access an input package to cover 2 acres of their farm. This package includes the recommended quantities of fertilizer, insecticides and fungicides for 2 acres.

**1.1.5 Product Pricing and its Evolution**

Prices of agro-inputs in Ghana are relatively high which could be attributed to a number of factors including increase in global prices, high financial and transport costs, and foreign exchange rates. As a result, the retail prices in Ghana can be about 50 per cent higher than CIF prices (IFDC/IFPRI, 2011). In rural areas where farmers buy fertilizer, the cost would be even higher. However, cocoa fertilizer prices are quite low because of the subsidy provided by the government.

According to the IFDC/IFPRI report on field data in Ghana in 2009 and 2010, finance emerged as the largest component of fertilizer costs, averaging 30 per cent (although varying somewhat by specific fertilizer product) (Figure 3.3). This cost is followed by the marketing and distribution cost of an average 27 per cent, which includes profit margins. Inland transportation cost contributes on an average of 21 per cent, and port charges average 18 per cent. Fertilizer imports are not subject to taxes, but the Government charges fees that account for about 4 per cent of total costs.

Table 4 shows the changes in prices of fertilizer and other agro-chemical supplied by two agro-input supply companies (Chemico Ltd & Wienco) to cocoa farmers from 2009 to 2012.

**Table 4: Agro-Input Pricing (Wienco & Chemico Products)**

ITEM	PRODUCT	RETAIL PRICE (GHS)					WHOLESALE PRICE (GHS)				
		2009	2010	2011	2012	% Change	2009	2010	2011	2012	% Change
<b>Fertilizer</b>											
Granular	Cocofeed (50kg/bag)*	14.73	25.00	29.00	33.00	55%	11.00	21.00	25.00	29.00	62%
	Asaasewura (50kg/bag)*	14.73	25.00	29.00	33.00	55%	11.00	21.00	25.00	29.00	62%
<b>Foliar</b>											
	Sett Enhanced (Liter)	8.50	9.25	14.00	17.00	50%	7.00	7.35	11.00	13.00	46%
<b>Insecticides</b>											
	Akatemaster (Liter)	28.00	30.00	33.00	33.00	15%	26.00	28.00	29.00	29.00	10%
	Confidor (30ml)	2.40	2.40	3.30	3.30	27%	2.00	2.00	2.70	2.70	26%
<b>Fungicides</b>											
Systemic	Fungikill (50g sachet)	2.20	2.50	2.90	2.90	24%	2.00	2.20	2.55	2.55	22%
	Ridomil Gold (50g sachet)	3.00	3.00	3.50	3.50	14%	2.50	2.50	3.30	3.30	24%
Contact	Champion (100g sachet)	1.30	1.50	1.90	1.90	32%	1.00	1.20	1.55	1.55	35%
	Nordox (75g sachet)	1.80	1.80	2.50	2.50	28%	1.50	1.50	2.00	2.00	25%

\*Ghana government through Cocobod subsidises fertilizer to the tune of about 60%. The wholesale price is the price Cocobod give fertilizer to retailers  
The insecticides and fungicides above are used by Cocobod for the mass spraying exercise (free spray for farmers).

For the period 2009 to 2012, fertilizer prices change at the retail level was 55% (though subsidized) while it was 62% at the wholesale level; insecticide price change at the retail level ranges from 15% - 27% and a range of 10% to 26% at the wholesale level; fungicides price change at the retail level ranges from 14% - 28% and a range of 22% to 35% at the wholesale level.

### 1.1.6 Cost-benefit of Agro-input Usage

Yields in Ghana are far below the global average. Typical yields in Ghana range from 200-500 kg/hectare, less than 20% of the typical yields in Indonesia, also one of the world's top producers. However, a number of factors contribute to low yields in Ghana. The Cocoa Research Institute of Ghana and other programs have demonstrated that if cocoa farmers adopt high-technology input packages of fertilizers and crop protection products and properly apply them, yields could increase by 112% in one year, and by over 350% by the third year. A typical example is the Commercial Strengthening of Smallholder Cocoa Production Project being implemented by CNFA in collaboration with Kuapa Kokoo and Chemico Ltd where the percentage average yield increase after the first year of input application in 5 districts was 82% as shown in Table 5 below.

Table 5: Summary of Yield\* Increase in the 5 districts

District	Yield* Increase (KG)		% increase
	2009	2010	
Offinso	422.4	821.3	94%
Asunafo North	589.2	987.2	68%
Aowin Suaman	550.0	999.23	82%
Wassa Amenfi East	486.2	812.0	67%
Twifo Praso	499.2	989.1	98%
<b>Average</b>	<b>509.4</b>	<b>921.77</b>	<b>82%</b>
<b># of bags</b>	<b>7.96</b>	<b>14.4</b>	

*\*Yield is for 2 acres*

The cost of chemical inputs per farmer for 2 acres is GHS 508 (\$267) as of June 2012. With expected yield of 14.4 bags from 2 acres and a farm-gate price of GHS 205 (\$108) per 64kg bag of cocoa, a farmer will generate GHS 2,952 (\$1,554) and a gross margin of GHS 2,444 (\$1,286).

### 1.1.7 Status of Counterfeit/Unapproved Products in the Cocoa Sector

The availability of counterfeit or illegal products is a dangerous and growing problem in Ghana like other African countries. A product is counterfeit if it is not genuine (original) while an illegal product is one not registered in the country where it is sold. The general absence of the approved agrochemicals at the retail level has led to the proliferation of fake or unregistered agro-chemicals from China, India and elsewhere onto the local market.

In Ghana, Kumasi Kejetia market constitutes a hub where unregistered and illegal agrochemicals are traded. From Kejetia the products are distributed to the various regional, district and community centres within the cocoa producing zones for sale to farmers. Table 6 below shows some unregistered/illegal agrochemicals sampled from agrodealers in Kumasi which are being sold to cocoa farmers.

Product	Common Name	Active Ingredient	Price/litter GHS	Product Origin
Insecticide	Lambda	Lamda-cyhalothrin	9	China
	Sumitox	Diamethoate	12	India
	Akate suro	Diazinon	19	Isreal
	Sumico	Fenvalerate	12	China
	Cymetric super	Diamethoate	12	India
	Attacker	Emamectin Benzoate	12	Isreal
	Controller	Cyhalothrin	8	China
	Carbodan	Carbofuran	6	China
	Confidence			
	Concider			
Fungicide	Buffalo			
	Bossmate			
Fungicide	Thiopsin	Thiophanate-methyl	7	China
	Kadmaneb	Maneb	7	china
Weedicide	Aduma wura	Glyphosate Isopropylamine	7	China
	Sunphosate	Glyphosate Isopropylamine	7	China
	Sharp	Glyphosate Isopropylamine	7	China
Foliar Fertilizer	DI glow			
	Super gro			
	Gotta gro			
	Asaase nofosuo			

None of the above products have been fully or provisionally registered to be used on cocoa in the Ghana EPA Revised Register of Pesticides as at 31<sup>st</sup> March 2012. Farmers buy unregistered and illegal pesticides because they are generally available and much cheaper than registered or approved products. Often they are not aware that investing in a good quality pesticide results in better yields. Farmers are often not aware that the product is a counterfeit or unregistered believing that they have purchased a genuine article.

Agro dealers generally sell both unregistered and illegal pesticides because the profit margins are often higher than on genuine products. In most African countries, although it is an offence to deal in counterfeit or unregistered products, the regulations in place are not sufficiently enforced and agro dealers are not adequately prosecuted when caught. Some dealers are, just as farmers, not aware that they are handling counterfeit or illegal products.

### 1.1.8 Agro-input Dealers

In Ghana, agro-input dealers could be described as independent rural enterprises who may not directly be affiliated with any agro-input supplier. They are free to purchase goods from multiple suppliers, creating competition and farmer choice. Agrodealers are important players in the cocoa and other agricultural value chains. They are the front line actors between the farmers and the agro-input supply companies and hence the first point of call for the farmers agro-input requirements. However, majority of agrodealers' managerial and

technical competence is quite low. They also lack access to credit for working capital to stock their shops with a variety of agro inputs for cocoa and other crops.

Agro-input retailers are spread throughout the country, though the Ashanti region has the highest density, both in terms of the number of retailers active in the area and the number per 1,000 farmers. Nationally, in Ghana, the agro-dealer density is 1.21<sup>1</sup> (IFPRI, 2010). Despite the coverage, most of the larger and better-stocked retailers are close to cities. Small-scale sellers, who are in closer proximity to farming communities, tend to be less well stocked.

As part of efforts to improve the capacity of the agro-input dealers to provide better services to farmers, The Ghana Agro-Dealer Development (GADD) project, implemented from October 2008 to March 2012 by IFDC provided financial and business management training to about 2,400 agro-dealers in all the 10 regions of Ghana. All the participating agro-dealers were certified after completing the training.

In Ghana agro-dealers have formed an association, Ghana Agri-Input Dealers Association (GAIDA). GAIDA was formed to be a platform for advocacy to the government and is active in facilitating capacity building among its members. GAIDA working with GADD project has mapped, profiled and created an electronic database of over 4,000 agro-dealers and has published the country's first national directory of agro-dealers. This directory has recently being revised. The table below shows the distribution of agro-dealers in the six cocoa regions in Ghana:

Region	Number of Agro-dealers	% of Total	% of Regional contribution to Cocoa Production
Brong-Ahafo	477	18.7	17%
Ashanti	722	30.2	9.7%
Central	351	14.7	8%
Western	335	14.0	56%
Eastern	346	14.5	9%
Volta	186	7.9	0.3%
<b>Total</b>	<b>2,390</b>	<b>100%</b>	<b>100%</b>

The Western region of Ghana which contributes nearly 60% of the total cocoa production has only 14% of the registered agrodealers operating in the region.

Though some of the agrodealers have received training from IFDC, they will require continuous training to improve on their managerial and technical competencies. These agro-dealers are a potential group that could be targeted for any intervention to deliver agro-inputs to cocoa farmers.

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<sup>1</sup> Agro-dealer density is measured as a ratio of agro dealers and farmers (no. of agro-dealers/1,000 farmers)

### **1.1.9 Institutional Support**

The Plant Protection and Regulatory Services Directorate (PPRSD) of the Ministry of Food and Agriculture together with the Environmental Promotion Agency are the state agencies responsible for the regulation of registration, import and distribution of agro-chemicals in Ghana.

Fertilizers and pesticides are analysed for their active ingredients as well as content at PPRSD's chemical laboratory before it is approved for registration and subsequent importation and distribution. PPRSD also conduct routine test of all agro-chemicals on the market with respect to their quality post registration to ensure the products are not altered post registration. This process also helps to detect counterfeit/unregistered products on the local market.

Agrodealers are required by law to register with EPA to enable them operate their businesses. As part of the process towards registration, staff of EPA and PPRSD are required to provide training on safe handling of agro-chemicals to the agrodealers.

### **1.1.10 Key Constraints to the Delivery of Cocoa Agro-inputs**

In Ghana there is a problem of access to approved agrochemicals to cocoa farmers. The approved agrochemicals are not available at the agrodealer retail points in most cocoa communities. This is because the subsidy on the approved agrochemicals used for the COCOBOD's mass spraying program is a disincentive for input suppliers to develop channels to supply products which are not subsidized through agrodealer networks. The pricing alone will not attract farmers to purchase un-subsidized products.

Again, product label of these approved agrochemicals, used for the mass spraying program, are boldly printed as NOT FOR SALE and it is an offence for agrodealers to trade in such products. However, there is a proliferation of pilfered products from the mass spraying program and other un-registered agro-chemicals from China, India and elsewhere at the retail level which are sold cheaply to farmers.

The issues above coupled with COCOBOD's active key role in the distribution of fertilizer, which though does not reach majority of cocoa farmers, have made investment in development of channels for cocoa agro-inputs distribution by the private sector (input supply companies) challenging since they cannot sell their products above the subsidized rate at the retail end. The result of this situation is that cocoa farmers patronize unapproved, and often ineffective, agrochemicals for the control of key cocoa pathogens.

### **1.1.11 Opportunities to Improve Delivery of Cocoa Agro-inputs in Ghana**

There are opportunities to introduce innovative ways to deliver fertilizer and agrochemicals to majority of cocoa farmers in a more effective manner if Ghana Government still wants to maintain the subsidy. ACI should collaborate with COCOBOD and input supply companies to develop a model which is private sector led to deliver cocoa inputs to farmers to replace the current mass spraying program.

The first recommendation is for the private sector (input supply companies) to develop an input distribution network for cocoa linked to a Voucher Program which is subsidized by COCOBOD at an agreed percentage. Cocoa farmers to benefit from the Voucher Program must be registered and provided with a unique identification number and a database created for this purpose. The cost of input package per unit area is established at the beginning of the season as well as the percentage of the cost farmers are required to pay. The farmer pays the accredited agro dealer the agreed price for the input package and receives the package of farm inputs. It is at the end of this transaction that the input supply company can redeem the subsidy from COCOBOD after providing evidence of farmer unique ID, quantity of input supplied and amount paid by farmer. This option will ensure the private sector now takes the lead in the distribution channel of fertilizers and agrochemicals through their accredited agro dealers who will sell approved inputs to farmers at market price “minus” the discount provided by government or COCOBOD.

The second recommendation is to build on the existing government spray gangs used for the mass spraying program by turning them into private spray service providers. A Spray Service Provider (SSP) is specially trained personnel to apply pesticides and who hires out his services to (fellow) farmers. Farmers who receive agro-inputs from agro-dealers will then hire the services of the SSP to spray their farms. This implies that untrained farmers will no longer handle pesticides, and that this application will only be undertaken by those who are properly trained and certified. Each SSP will be officially certified by an accredited agency for a period of time and will receive an Identity Card which states the period of certification.

## Key Contacts

### *Ghana*

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