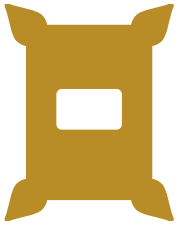
3. FERTILIZER
IMPROVING SUPPLY AND QUALITY



A farmer wants to diversify her crops by growing different vegetable products. The fertilizer she has been using until now does not work well with this particular set of vegetables. The agro-input dealer in her village has told her that none of the fertilizers available provide the proper suite of nutrients for her vegetable crops. A fertilizer company is registering a new fertilizer product in the country suited for the vegetables she plans to grow, but burdensome regulations require the company to interact with multiple agencies to register the product and conduct fertilizer testing so that a national committee can approve the application. This whole process takes more than seven years and the farmer will have to wait until then before she can access this new fertilizer that can increase her yield.

EBA fertilizer indicators measure laws and regulations on the registration, import and quality control of fertilizer products. They address factors important to companies importing and selling fertilizer products, farmers using quality fertilizer products to increase their productivity and governments pursuing regulations that ensure the quality of products and effectiveness of fertilizer markets.

In many countries, fertilizer products must be registered before they can be sold commercially. Registration of fertilizer products is important because it brings new and innovative products to the market while ensuring safety and quality.

The first indicator, fertilizer registration, measures the requirements to register a fertilizer product for the first time and whether the registration is limited to a time period. Fertilizer registration ensures that governments have control over what types of fertilizers enter the market. It is important to provide market oversight through a registration scheme, since the effects of farm inputs may only become apparent long after they are used.[1] Inadequate nutrients, heavy metals or other residues found in fertilizer products can contaminate crops, animals and humans.[2] Farmers should be given assurance that the products they use will not contaminate their crops and the environment. But registration procedures should be time- and cost-efficient to ensure that new products reach the market in a timely manner. If registration becomes lengthy and expensive, it can distort competition by limiting the number of players and products in the market. This indicator also measures the transparency of the registration system by examining catalogs listing registered fertilizer products and whether they are available online.

The second indicator, fertilizer import requirements, measures regulations for importing fertilizer. Import requirements are important because fertilizer production is concentrated only in a few countries, so most must rely on imports.[3] This is because fertilizer is subject to economies of scale at every stage of the supply chain, requiring vast amounts of capital and raw materials to produce.[4] Understanding import requirements and the associated time and costs allow for a better knowledge of the market. This

indicator measures whether the private sector is allowed to import and sell fertilizer products. Allowing the private sector to engage in the domestic market for fertilizer can result in more efficient markets and lower prices.[5] More private sector participation in the market increases fertilizer access and use, which in turn raises crop yields and cuts reliance on heavy food imports.[6] This indicator also addresses the cost and time to obtain import registrations and permits. A quick and cheap import registration process eases access to the market while informing the government of the players in the market within its borders.[7] But import permits obstruct trade by complicating the import process and increasing the required time and cost. This practice often creates bottlenecks between the companies and dealers supplying farmers.[8] Since import procedures vary across countries, this indicator aims to highlight the balance between control and efficiency needed to ensure a strong market for fertilizer.

The third indicator, fertilizer quality control, assesses government regulations and practices on preventing poor quality fertilizer products from reaching the market. Adulterated, low quality and counterfeit fertilizer products can stunt crop growth and development,[9] leading to lower crop yields, lower farmer incomes, increased food and income insecurities and even environmental problems. This indicator also addresses labeling requirements—important because labeling fertilizer bags increases market certainty (since consumers know what types of products they are buying). Labeling requirements give important information about a bag's contents and the name of its producer. In addition, the indicator looks at rules on the sale of open and mislabeled fertilizer containers. Governments should act to ensure that fertilizer labels correspond to the content inside their containers to guarantee trust between buyers and sellers.[10] Aside from mislabeling, the sale of open fertilizer bags can also be harmful to consumers, as they are susceptible to adulteration, hurting crop yields, reducing farmers' profits and increasing food insecurity.[11]

The *EBA* fertilizer data cover the following areas:

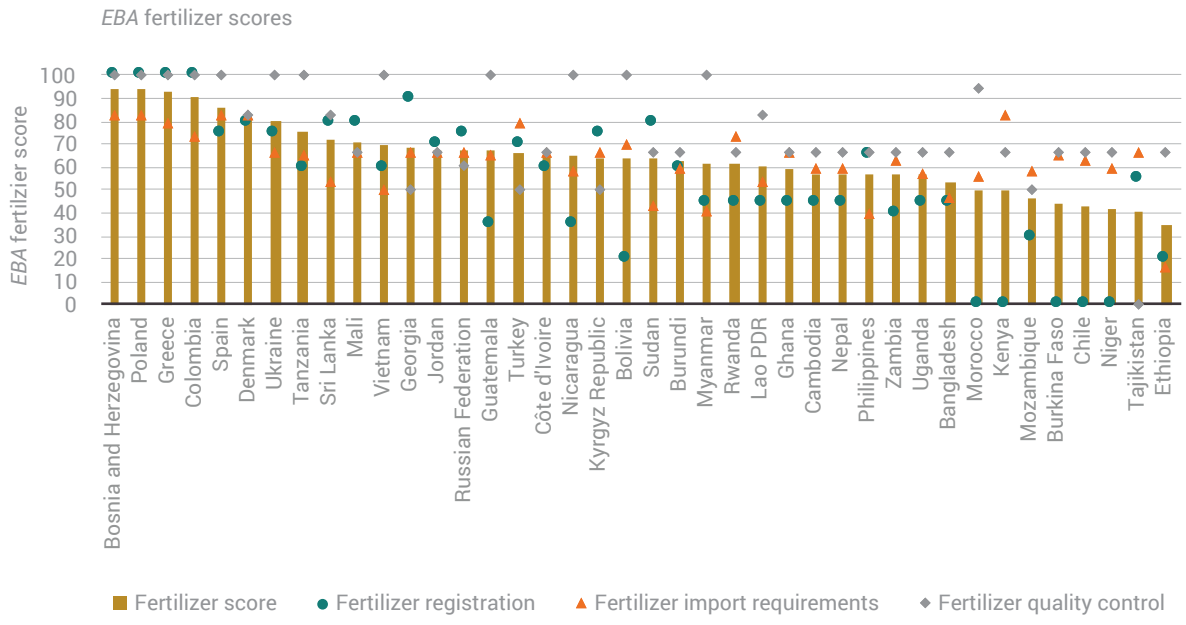
- **Fertilizer registration.** This indicator measures the requirements to register a fertilizer product for the first time, whether the registration is limited to a time period and the existence and accessibility of an official fertilizer catalog.

- **Fertilizer import requirements.** This indicator focuses on the private sector's role and the requirements for importing fertilizer, including the costs of registering as an importer of fertilizer and obtaining an import permit.

- **Fertilizer quality control.** This indicator measures labeling requirements, rules on the sale of open and mislabeled fertilizer containers and practices for monitoring fertilizer quality.

Across the 40 countries surveyed, fertilizer regulations range from the more strict and highly protective, limiting market access, to the weaker or seemingly nonexistent; neither of the two extremes is desirable. Bosnia and Herzegovina, Poland, Greece, Colombia and Spain are the top 5 performers in the regulatory areas measured by the fertilizer topic (figure 3.1).

FIGURE 3.1 Sixteen countries have overall fertilizer scores above the sample average



Source: *EBA* database.

Bosnia and Herzegovina, Colombia, Greece and Poland have the strongest and most efficient regulations for fertilizer registration. In these countries, the private sector is required to register fertilizer products, registration of fertilizer products has no time limit and registered fertilizer products are listed in an official catalog that is accessible online. Thirty-three of the 40 countries surveyed require the private sector to register fertilizer. But only 17 of those have registrations that either have no time limit or have one that lasts at least 10 years. For fertilizer registration, the number of procedures varies significantly across countries, with the time needed to register a new fertilizer product ranging between 15 and 1125 calendar days, and the cost ranging from 0% to 1,064.5% of income per capita.

Bolivia, Bosnia and Herzegovina, Colombia, the EU countries (Denmark, Greece, Poland and Spain), Kenya, Turkey and Rwanda are the best performers in terms of the fertilizer import requirements measured. Regulatory bottlenecks for importing fertilizer, such as licensing requirements, are less costly and onerous in these countries than in the *EBA* 16 sample average. In Sub-Saharan Africa, both Kenya (a lower-middle-income country) and Rwanda (a low-income country) are among the best performers globally, offering good examples to other countries in the region that are not performing as well.

The differences among countries are less apparent in fertilizer quality control. Twelve of the 40 countries surveyed require labeling fertilizer containers and prohibit the sale of mislabeled and opened fertilizer bags. All countries require labeling and most prohibit the sale of mislabeled products. But 22 of the 40 countries do not prohibit the sale of open fertilizer

bags—a practice that is common because of affordability, but not recommended because it hampers the ability to ensure high-quality fertilizer.

Registration takes less time but is most costly in countries where it needs to be done only once

Registering new fertilizer products is a good practice because it ensures that a country has control over what fertilizers are used within its borders (box 3.1). Controls are necessary to prevent soil damage, environmental pollution or adulterated fertilizer use.[12] And product registration allows countries to increase market awareness, compile and share information with the public and guarantee human, animal and environmental safety.

Countries may require companies to register fertilizer products in three ways: once in a lifetime, re-applying for registration periodically or having the registration automatically renewed after a certain time. Having to register fertilizer products once in a lifetime or having the registration automatically renewed reduces the burden on companies by not requiring them to have to go through the process again.

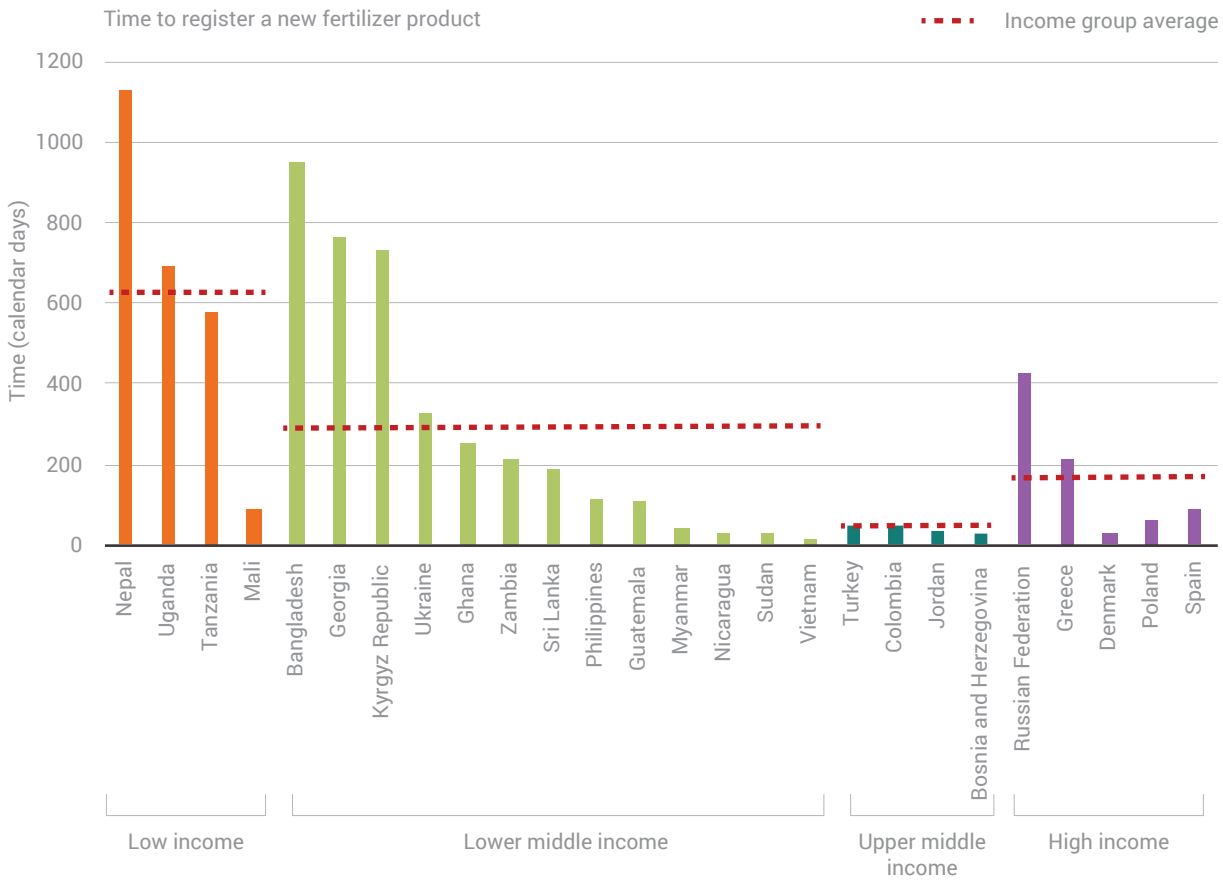
BOX 3.1 Good practices for fertilizer registration

- Should require private companies to register fertilizer products. The registration would ideally be valid indefinitely.
  - In countries where the registration is limited to a specific time period, the validity should be at least 10 years.
  - In countries where the registration is limited to a specific time period, the renovation of application should be automatic.
- Develop efficient and affordable fertilizer product registration.
- Should list registered fertilizer products in an official catalog that is accessible online.

It takes on average 258 calendar days to register a fertilizer product in the 40 countries sampled, ranging from 15 calendar days in Vietnam to 1125 in Nepal (figure 3.2). Countries which take the least time usually require fewer procedures—usually an application for registration and a content verification report in the form of lab samples. Among these countries are Denmark, Guatemala, Nicaragua, Spain and Vietnam. Countries where fertilizer product registration takes the longest require several procedures, usually including an application for registration, content verification report in the form of lab samples, field testing, an environmental report, approval by a national committee and publication in the official gazette or journal. Of these procedures, field testing is the longest, as it can take place over many seasons, prolonging the registration process for several years.

The time it takes to register fertilizer products also depends on the type of registration. Registration takes less time but is most costly in countries where it needs to be done only once. Indeed, in countries where firms do not need to re-register fertilizer (once-in-a-lifetime registration), the registration of a new fertilizer product takes less time—on average 154 calendar days—ranging from 54 calendar days in Bosnia and Herzegovina to 578 in Tanzania. Registering a new fertilizer product for the

FIGURE 3.2 The time to register new fertilizer products ranges from 15 to 1125 calendar days



Source: *EBA* database.

first time takes on average 325 calendar days in countries where a new application is needed to re-register. And where re-registering is automatic, the time for registering a new fertilizer product is the highest—398 calendar days.

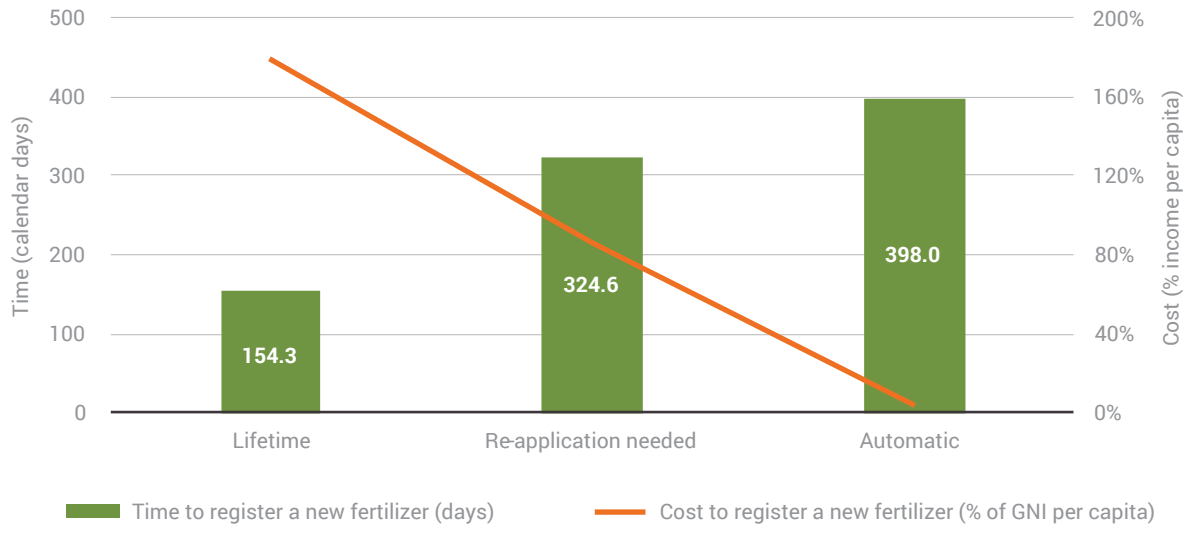
It is most expensive to register a fertilizer product in countries with once-in-a-lifetime registration, costing on average 179.7% of income per capita. Among countries with once-in-a-lifetime registration, Bosnia and Herzegovina is the cheapest, with a negligible cost. Tanzania is the most expensive, averaging 1,064.5% of income per capita, due to expensive costs for field testing, which alone costs 1,050% of income per capita and takes 570 calendar days (table 3.1). Countries where re-application is necessary have a much lower cost to register a product for the first time (85.9% of income per capita), as do automatic-registration countries (3.7% of income per capita) (figure 3.3).

TABLE 3.1 Cost and time to register a new fertilizer

COST TO REGISTER A NEW FERTILIZER (% OF GNI PER CAPITA)				TIME TO REGISTER A NEW FERTILIZER (DAYS)			
The cheapest…		… and the most expensive		The fastest…		… and the slowest	
Spain	0.0%	Tanzania	1064.5%	Vietnam	15	Nepal	1125
Jordan	0.3%	Ukraine	717.3%	Sudan	29	Bangladesh	951
Guatemala	0.4%	Uganda	258.9%	Nicaragua	30	Georgia	765
Denmark	0.4%	Zambia	241.5%	Bosnia and Herzegovina	31	Kyrgyz Republic	730
Bosnia and Herzegovina	0.5%	Ghana	89.2%	Denmark	31	Uganda	691

Source: *EBA* database.

FIGURE 3.3 Registration takes less time but is most costly in countries where it needs to be done only once



Source: *EBA* database.

Only four countries require companies to register as an importer of fertilizer but do not require import permits

Registering import companies allows countries to monitor the supply of imported fertilizer products (box 3.2). Having simple and affordable registration processes is a good practice that allows competition and facilitates market access.[13] Import permits are primarily desirable for controlling potentially dangerous chemicals—such as ammonium nitrate, a chemical that can be used for producing explosives. But onerous requirements for obtaining import permits obstruct trade and create unnecessary burdens for importers.[14]

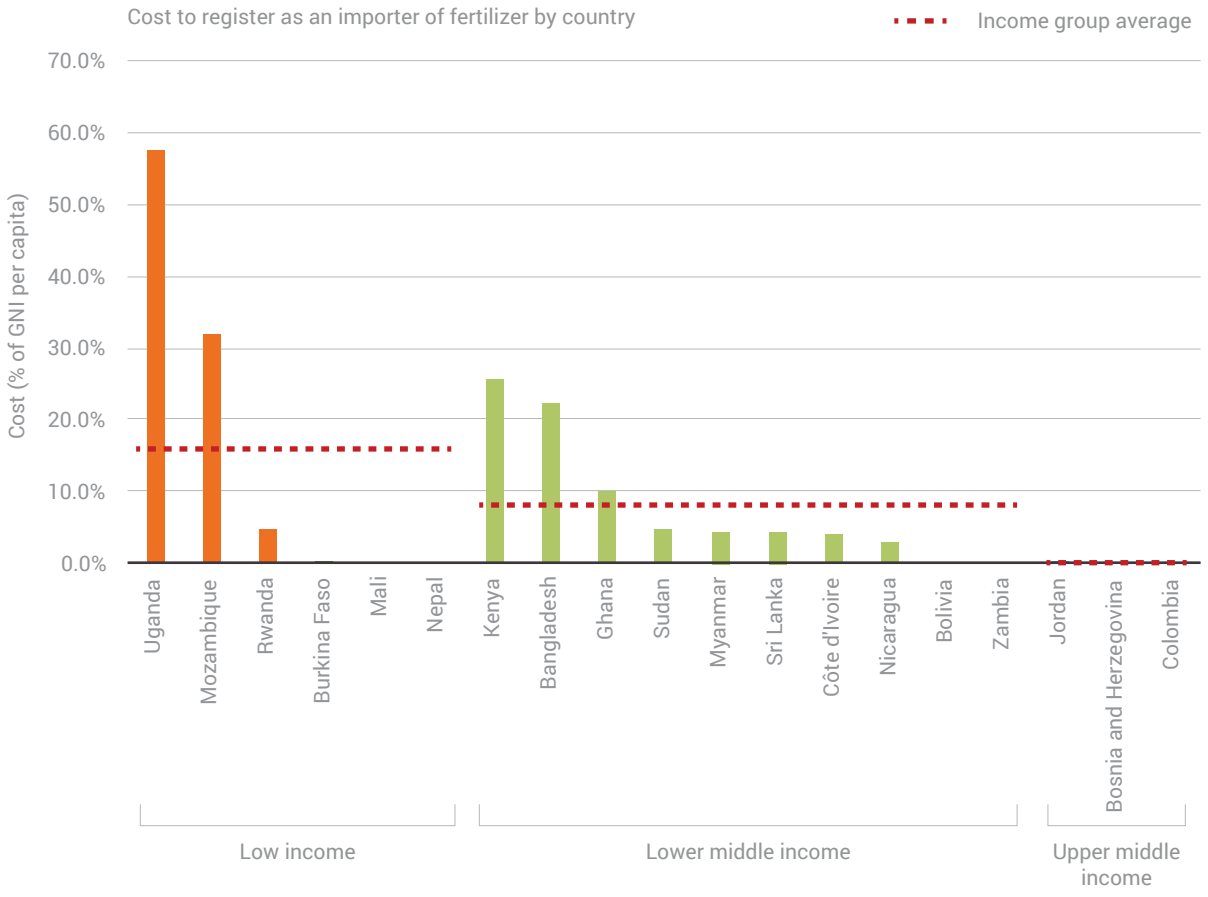
BOX 3.2 Good practices for fertilizer import requirements

- Should allow fertilizer products already registered in another country (with good policies, regulations and quality and standards requirements) to be imported without needing to be re-registered in the importing country.
- Should allow private companies (including foreign ones) to import fertilizer for own use and sale.
- Should require private companies to register as importers of fertilizer in order to sell it. The registration would ideally not be limited to a specific time period.
- In countries where the registration is limited to a specific time period, the validity should be at least 10 years.
    - The cost of the registration should be affordable.
    - Should allow private companies to import fertilizer without needing to obtain a special permit.
- In countries where a permit is required, the permit should not be limited to a specific time period.
    - The cost of the permit should be affordable.

All studied countries except Ethiopia allow domestic companies to import fertilizer products for their sale. Ethiopia only allows domestic companies to import fertilizer products for self-consumption, a practice only carried out by large agro-industries. Bangladesh, Cambodia, Ethiopia, Myanmar, the Philippines and Sudan are the only countries that prohibit foreign companies from importing fertilizer products.

Twenty-five of the 40 countries studied require the private sector to register as an importer of fertilizer, and 12 of the 40 do not require companies to obtain import permits. Only 4 countries—Bosnia and Herzegovina, Côte d'Ivoire, Ghana and Kenya—follow both good practices. In countries where companies are required to register as fertilizer importers and obtain import permits, the cost varies substantially across countries. To register as a fertilizer importer, the cost ranges from free of charge to 58% of income per capita (figure 3.4). Bolivia, Bosnia and Herzegovina, Colombia, Mali, Nepal and Zambia are the six countries that require fertilizer importers to register and where the registration is free, which is considered a good practice. In import permits, the cost variation is smaller, ranging from no cost to 13% of income per capita.

FIGURE 3.4 The cost to register as an importer ranges from 0 to 57.5% of income per capita



Source: *EBA* database.

A majority of countries prohibit mislabeled fertilizer containers and only one-third penalize the sale of open bags

Labeling fertilizer helps to ensure quality control (box 3.3).[15] All surveyed countries except Tajikistan require companies to label fertilizer containers in order to sell them. And all surveyed countries except Turkey have laws prohibiting companies from selling mislabeled fertilizer. Allowing open fertilizer bags to be sold is not a good practice. Common in many counties where farmers cannot afford to purchase entire bags of fertilizer, the sale of fertilizers in open bags can be harmful since they are susceptible to adulteration—affecting crop yields, potentially reducing farmers' profits and leading to food insecurity.[16] Instead, markets should adapt to offer smaller bags. Over half the surveyed countries do not prohibit the sale of open fertilizer bags (figure 3.5). Of the countries that prohibit the sale of open fertilizer bags, only four—Denmark, Lao PDR, Sri Lanka and Turkey—do not establish penalties for companies that do so.

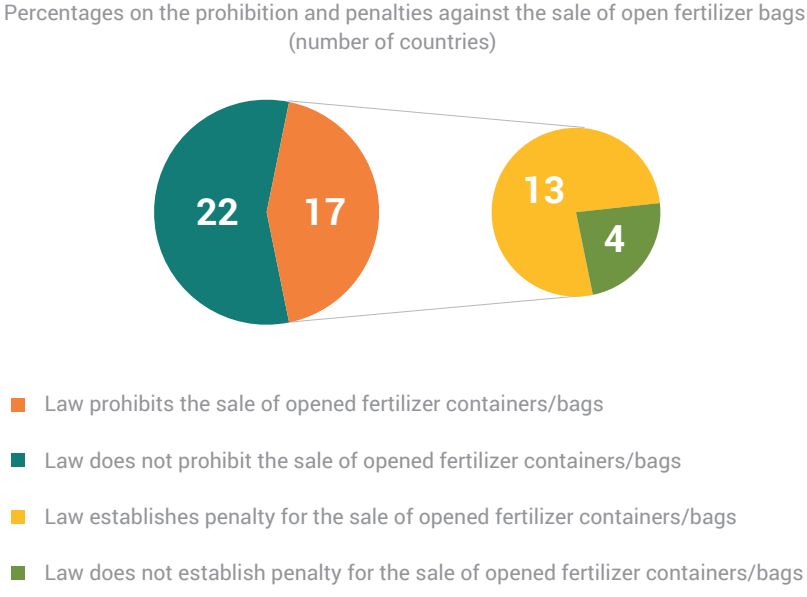
Conclusion

A strong and competitive fertilizer market is extremely important to a country's agricultural sector since this input greatly influences farm productivity. Several external factors not measured by *EBA*,

BOX 3.3 Good practices for fertilizer quality control

- Should require labeling of fertilizer containers (bags, bottles).
  - The regulations should specify the requirement to include the fertilizer brand name, net weight or volume and a description of the content on the label.
- Should prohibit the sale of mislabeled fertilizers.
  - A penalty for the sale of mislabeled fertilizers should be established in the regulations.
- Should prohibit the sale of opened fertilizer containers.
  - A penalty for the sale of opened fertilizer containers/bags should be established in the regulations.

FIGURE 3.5 Over half of the surveyed countries do not prohibit the sale of open fertilizer bags—and those that do, do not always have a penalty for it



Source: *EBA* database.

such as international commodity and shipping prices, have a strong influence on the industry. But the regulatory environment also determines the health of the fertilizer market. *EBA* aims to promote smart regulations that enable competitive markets in the fertilizer sector, such as:

- **Efficient and affordable fertilizer product registration for companies**. Colombia sets a good example with clear registration regulations and efficient procedures.

- **Streamlined import procedures for the private sector, which allow for timely availability of fertilizer.** Kenya's import regulations allow the private sector to import fertilizer products through an efficient import registration and licensing system.

- **Compulsory labeling and packaging requirements, which promote the sale of high-quality fertilizer**. Vietnam's exemplary regulations for ensuring quality fertilizer establish effective labeling mechanisms and penalize mislabeled and opened fertilizer bags.

Regulatory reforms are not easily accomplished and do not occur overnight. The complexity of the fertilizer sector demands smart regulations that balance the needs of a competitive sector while ensuring safety and quality for human health and the environment. The fertilizer topic measures regulations pertinent to companies and farmers in the areas of product registration, import and quality control. These indicators can be used by governments pursuing to improve their laws and regulations to enable a competitive fertilizer sector.

Notes

1. World Bank 2015.
2. Rutgers University 2006.
3. Hernandez and Torero 2011, 2013.
4. World Bank 2015.
5. Gisselquist and Van Der Meer 2001.
6. World Bank 2015.
7. Gisselquist and Van Der Meer 2001.
8. AGRA 2014; Keyser 2012; World Bank 2012.
9. Fintrac 2014; Liverpool-Tasie and others 2010; Mujeri and others 2012; Pullabhotla and Ganesh-Kumar 2012; Visker and others 1996.
10. Gisselquist and Van Der Meer 2001.
11. World Bank 2010.
12. Gisselquist and Van Der Meer 2001.
13. Gisselquist and Van Der Meer 2001.
14. AGRA 2014; Keyser 2012; World Bank 2012.
15. Gisselquist and Van Der Meer 2001.
16. World Bank 2010.

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