

# Part 3: Operating a Blending Facility

## Session 3.5 Blending and Bagging

# Blending and bagging

- **Blending** is the process of mixing fertilizer raw materials that flow freely and liquid coatings
- **Bagging** is the process of packaging the blended materials into bags with open mouths
- Follow ECOWAS guidelines
- Develop SOPs on blending and bagging procedures
- Use a good quality batch or continuous blending system



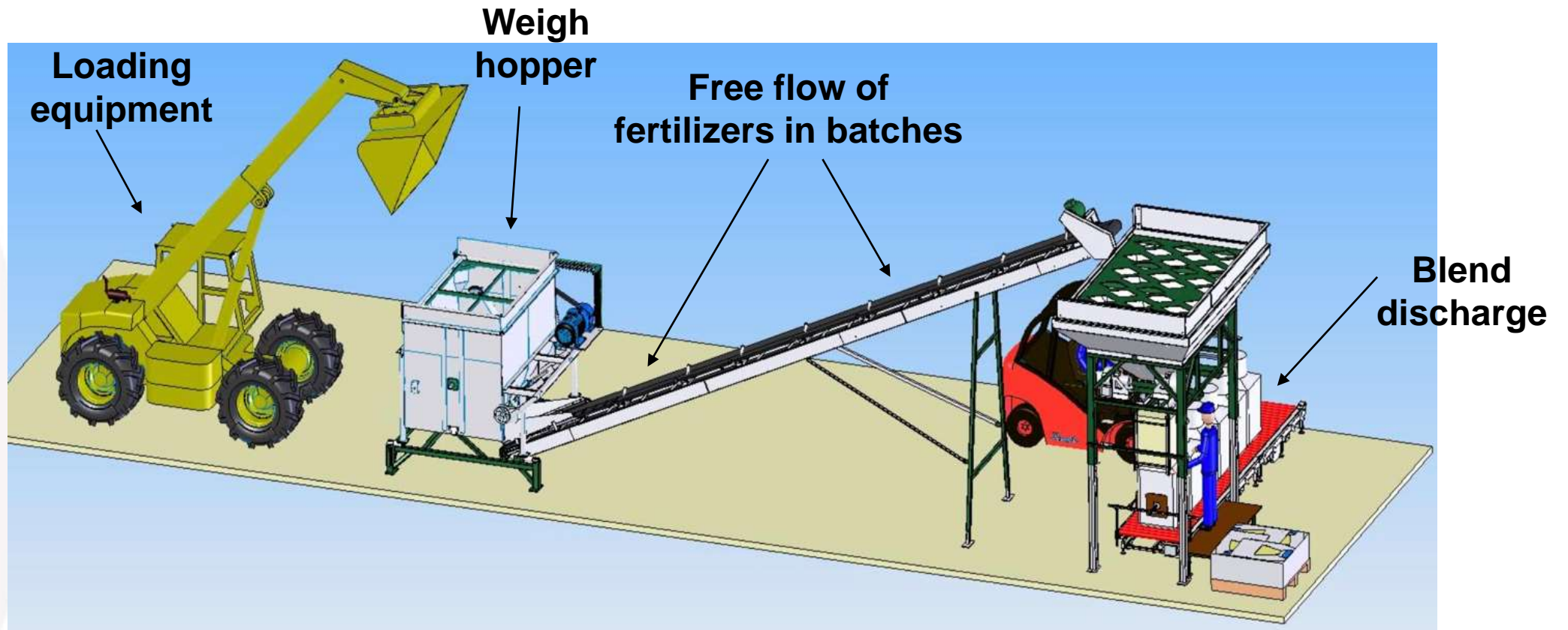
# Preparations

Before the day of blending:

- Check if the **formula** grade is correct.
- Check if the **raw materials** required to satisfy the nutrient guarantees are **available**.
- Check if enough **bags** are available.

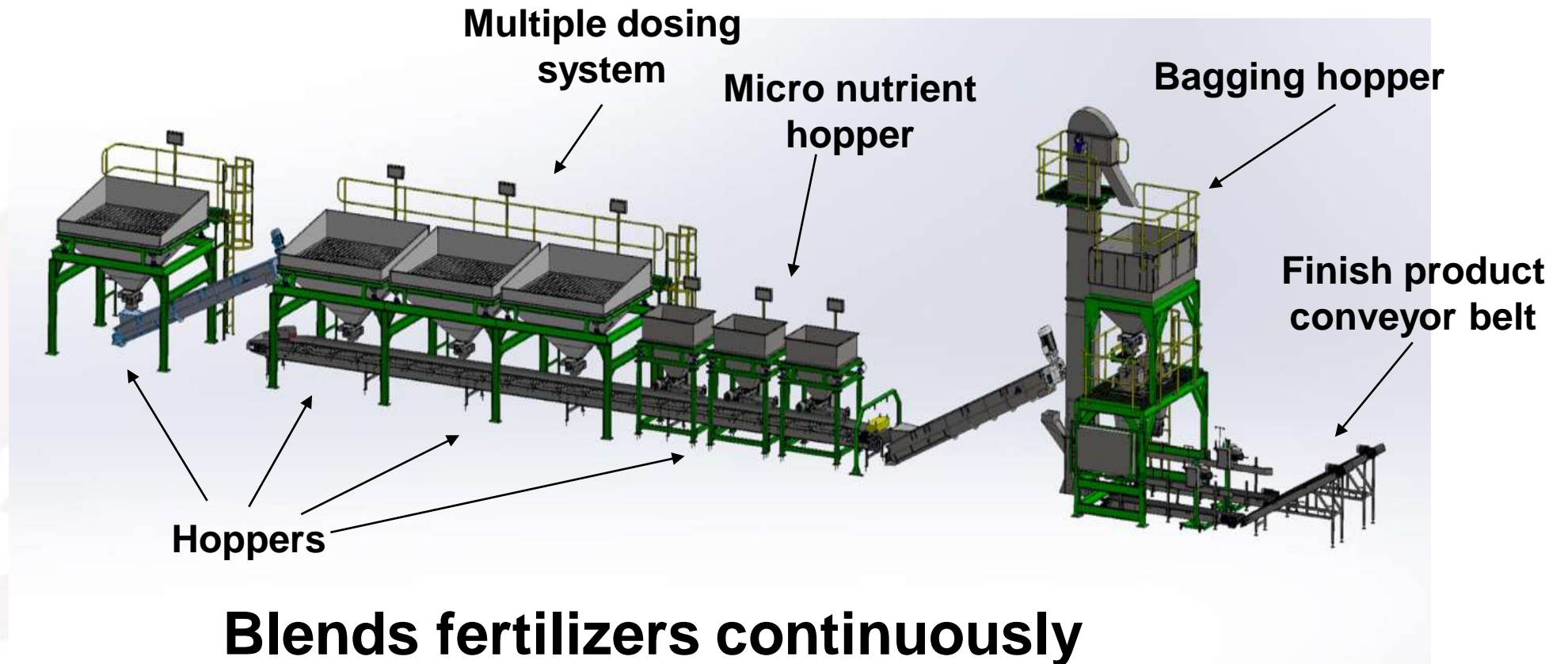


# Operating a batch blending plant



**Needs to be refilled for every new batch**

# Operating a continuous blending plant



# Operating a bulk blending system

1. Set the plant and scales to your predetermined zero setting.
2. If applicable, set the micronutrient impregnation system and scales to your predetermined zero setting.
3. Load raw materials in receiving hopper(s) till the bins are full.
4. Load micronutrients (powder/granular) in their receiving hopper(s) or ensure the feed in nozzle/spout of the liquid micronutrient is opened.



# Loading raw materials



# Operating a bulk blending system

5. Start the blending Machine.
6. Visually inspect movement of materials from hoppers to mixer.
7. Start the bagging machine simultaneously with the blending machine.
8. Start the bag stitching Machine simultaneously with the bagging process.
9. Check bag weights manually at intervals.



# What can go wrong?

## Batch type blending plant

- Low quality raw materials e.g., lumpy, moist, low nutrient content value etc., are used because the mixer/blender is a drum type and can handle it.
- Cleaning of the entire line is not properly done in between batches, especially of different blend specifications.
- The weights and quantities of raw materials are wrongly calculated or wrongly fed into the hopper(s).

# What can do wrong?

## Continuous type blending plant

- The raw materials are not flowing freely.
- The raw materials are not fed into the hoppers at a constant rate (speed).
- The hopper is fed with the wrong material that it was not calibrated for.
- The wrong blend formula is programmed.
- There is an obstruction in any section of the plant which may cause inaccurate weight readings at either the in-feed hoppers or bagging pre weighers.

# Bagging



# Bagging

- **Double stitch** each bag so the product in the bag is tightly secured. This helps prevent product segregation while in storage or transit.
- Utilize bags with an **inner lining** and **transparent sides** when bulk blending. The transparent sides enable visual inspection of the quality of blends contained therein.

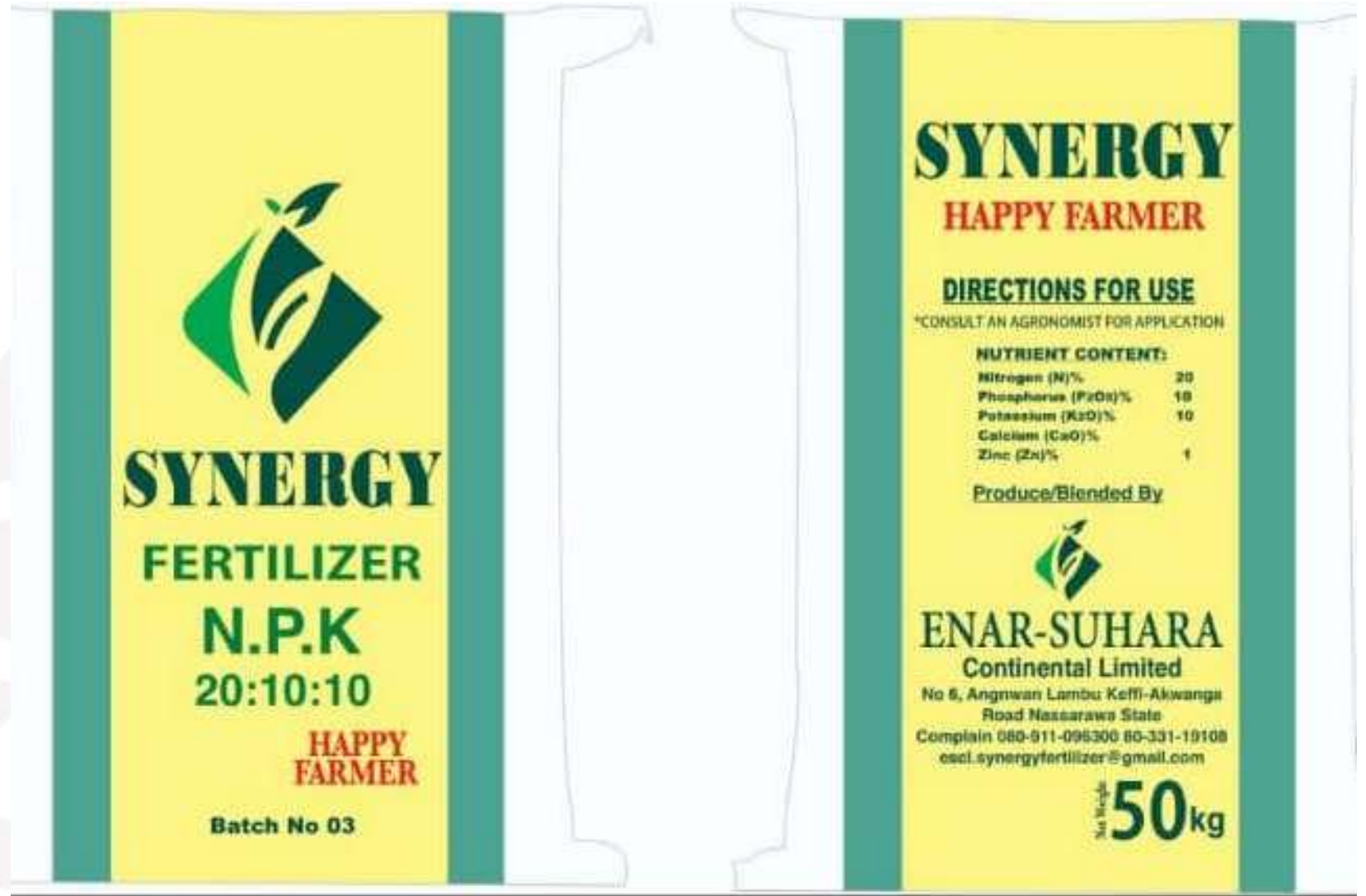


# Bagging

## FERTILIZER BAG CHARACTERISTICS

<b>Product</b>	Fertilizer packaging bag Laminated polypropylene woven sack Polyethylene liner Transparent sides – recommended
<b>Material</b>	100% virgin polypropylene
<b>Size</b>	10 kg: L 610 mm * W 350 mm 20 kg: L 760 mm * W 450 mm 25 kg: L 800 mm * W 450 mm 50 kg: L 980 mm * W 580 mm
<b>GSM</b>	40 gsm – 80 gsm 75 gsm recommended
<b>Description</b>	High tensile strength Withstands falls and friction Dimensional stability Good printing surface Compliance contact

# Labeling



# Labeling

- Follow ECOWAS regulations
- Labels should be permanent, clear and prominent
- In official national language
- Include specified information



Economic Community  
of West African States



(Ref. Implementing Regulation ECW/PEC/IR/02/03/16)

The label illustrated here is not a standard. It's a model that simply shows the minimum information required on fertilizer labels, as prescribed by an ECOWAS Implementing Regulation on labeling.

## THE BIG FIVE

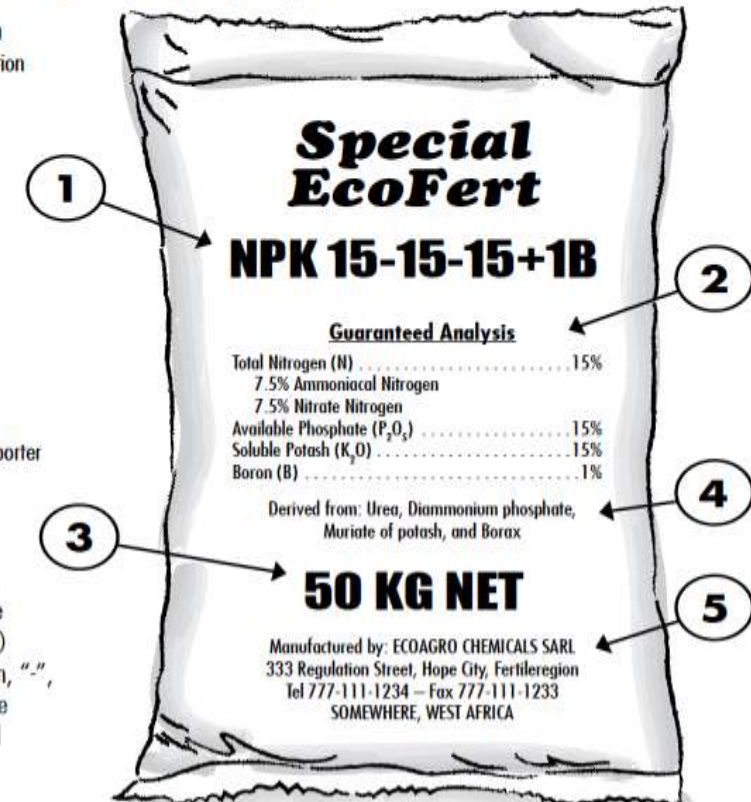
Five required components must appear on a fertilizer label:

1. Grade
2. Guaranteed analysis
3. Net weight
4. Sources of nutrients
5. Name and address of the manufacturer, importer or re-packing agent

## GRADE

Grade is a shorthand representation of the guarantees for Total Nitrogen (N), Available Phosphate ( $P_2O_5$ ) and Soluble Potash ( $K_2O$ ) with each guarantee separated by a hyphen, "–", e.g., 15-15-15. The grade shall be in whole numbers and in the same terms, order, and percentages as in the guaranteed analysis.

# ECOWAS FERTILIZER LABELING



# Labeling

The label must contain the following information

- The grade
- The guaranteed analysis (or formulation)
- Net weight
- Sources of nutrients
- Names and address of manufacturer



# Disposal of (used) bags

- Bundle and dispose of used bags in an **approved landfill**.
- Bags can be **recycled** into non-useable items, such as filling or padding for handmade furniture.
- **WARNING:** Used fertilizer bags are prohibited to be used to store or transport crops, including cocoa.



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