

Dosage required for IBG Oil Palm Bio Fertilizer

For oil palm 1 – 2 years: 20 ml IBG/palm per round (**2 rounds per year with 6 months interval**)

For oil palm 3 years above: 25 ml IBG/palm per round (**2 rounds per year with 6 months interval**)

Spray solution: 1 liter/palm

Palms covered per 16 liter knapsack: 16

Our IBG bio fertilizer is twice application per year, if the current estate is facing labour shortage, one application per year is recommended as below:-

For oil palm 1 – 2 years: 40 ml IBG/palm per year (**1 round only**)

For oil palm 3 years above: 50 ml IBG/palm per year (**1 round only**)

Spray solution: 1 liter/palm

Palms covered per 16 liter knapsack: 16

The above recommendation is only for reference and subject to change according to the estate's budget and manuring program.

Knapsack Sprayer Calibration Procedures

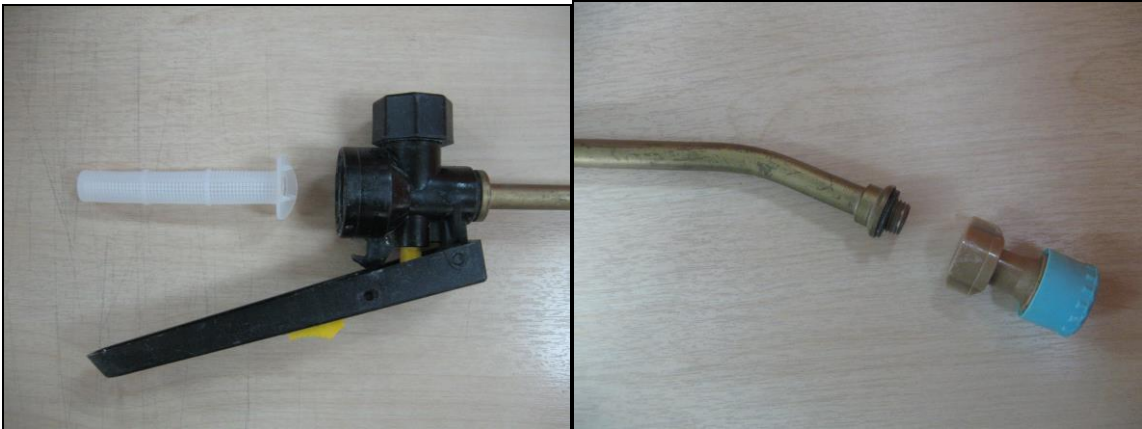
Each knapsack sprayer has to be calibrated before use. A new knapsack sprayer is recommended for IBG application. An old knapsack sprayer can be used after it has been wash thoroughly.

Calibration tools required:

1. Knapsack sprayer
2. Water 20 liter.
3. Worker
4. Minimum 2 liters measurement jar

For 16 liters knapsack sprayer, 1 palm would required 1 liter of water solution. Any water can be used during calibration.

- a. Removed the knapsack's nozzle and filter



Before spraying and calibration, filter and nozzle has to be removed in order to get a smooth and quick flow of water that speed up the spraying process. Please check the knapsack sprayer part for any water leak. If any serious leaking is occurred, please repair the sprayer before use.

- b. Fill the knapsack sprayer half-full with water and close the lid.
- c. Measuring knapsack capacity



Press the pumping handle till it is fully pumped (about 6 – 7 full swing), press the trigger to release the water onto the measurement jar until a “cluck-cluck...” sound to be heard from behind the knapsack, then stop the trigger. That is the sound when the pressure in the knapsack is almost depleted.

- d. Observe the jar and we will get 500 ml. If more than 500 ml is obtained, repeat the method (c) but with lesser swing; if less than 500 ml is obtained, repeat the method (c) but with longer stopping sound.

e. Spraying the solution



Fill the knapsack sprayer with full water. Spray the solution onto the palm base of half circle of the palm base for 500 ml as shown below using the method (c). Repeat the method (c) for another 500 ml onto the remaining half circle of the palm to distribute exactly 1 liter of solution. If the palms is 1 – 3 years old, only 500 ml solution in total required.

- f. Theoretically, 16 liters solution can sprayed to 16 palms (32 palms for 1 – 3 years old), but sometimes due to worker's different ability, they can get 15 or 17 palms (30 – 34 palms for 1 – 3 years old). From calibration, we can know the sprayer's capacity and worker's ability.
- g. Calculate the required time for mix and apply procedure per knapsack. The more faster the worker mix and apply the bio fertilizer, the more area he can covered. Hence the worker rate can be calculated. As a guideline, one worker required 15 minutes to apply for 16 palms (32 palms for 1 – 3 years old). 7 hours manday can cover 28 knapsack and apply for 448 palms (56 knapsack and apply for 896 palms for 1 – 3 years old).

Mixing Procedures for Bio-agro/IBG Series Bio Fertilizer:

Mixing tools requirement:

1. IBG bio fertilizer
 2. Knapsack sprayer
 3. Water 20 liter (River, rain or drain water is preferred as tap water contains Chlorine)
 4. Worker
 5. Measurement cup (included with the product)
 6. Pail
 7. Stick
- a. Fill the knapsack sprayer half-full with water.



- b. Shake thoroughly before open the bottle cap to gain a evenly mixture.

c. Open the bottle



Take off the bottle cap carefully and also removed the seal of the bottle.

d. Gain even mixture



Pour all the IBG solution into a pail and use a stick to stir it to gain even mixture.

- e. Take the correct dosage



Take the right proportion of the recommended dosage of IBG bio fertilizer and pour into half full contained knapsack. Please take note that if the worker are getting 16 palms per knapsack from calibration process mentioned above, the solution should be times 16. E.g. $25 \text{ ml/palm} \times 16 \text{ palm} = 400 \text{ ml}$ of IBG bio fertilizer.

- f. Fill the knapsack with water



Fill the knapsack full and agitate the solution at the same time to gain a good and even solution.

g. Spraying the solution



Spray the solution onto the palm base of half circle of the palm base for 500 ml as shown below. Repeat the method for another 500 ml onto the remaining half circle of the palm to distribute exactly 1 liter of solution. If the palms is 1 – 3 years old, only 500 ml solution in total required.