

How to grow

soybean





Planning and preparing the land

Rotate soybean with maize or sorghum to improve soil fertility and control diseases. Nitrogen fixed in the soil by soybean will benefit the next crop that comes in the rotation.

Step 1

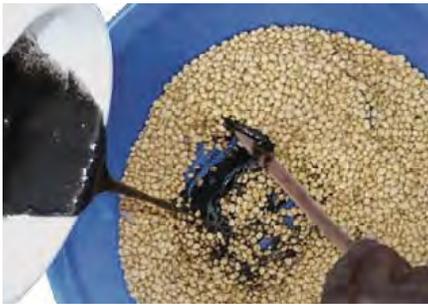


Select fertile to moderately fertile land, with no water logging.

Step 2



Prepare land well to create a uniform seedbed with no weeds.



Step 3

- Soybean will add nitrogen from the air, so do not apply nitrogen fertilizer.
- Get the recommended rhizobium inoculant for your area.
- Store the rhizobium inoculant in a cool, dark and dry place.



Step 4

Get good seeds of the soybean type recommended to your area and acceptable to buyers.



Step 5

Test the seeds for germination by planting 30 seeds, if at least 25 germinate, then the seed is good to plant.



Before planting, apply a legume inoculant e.g. Biofix. Inoculation is the process of bringing the appropriate rhizobia into contact with legume seeds

Directions for using rhizobium inoculants in soybean.

Seeds of soybean, common bean, cowpea and other legumes are coated with inoculant just before planting to encourage effective nitrogen fixation by the plants.

- Add 4 soda tops of gum arabic or sugar to one soda bottle (300ml) filled with clean lukewarm water and shake well to dissolve. This is the sticker.
- Measure 15kg of soybean this will be approximately 15 litres.
- Place in any container that will accommodate the seeds.
- Mix the soybean with sticker solution until all the seeds are completely covered.
- Pour the rhizobium inoculants pack onto the seeds and sticker.
- Mix the seeds and the inoculant thoroughly until all the seeds are uniformly covered.
- Protect the inoculated seed from direct sunlight by covering the container with paper, cloth or gunny bag and keep under shade until planted.
- Place the inoculated seed in a well-prepared moist furrow and cover immediately with soil.

Always plant seeds on the same day they are inoculated.



Planting time, spacing and fertilizer application

Plant at onset of rains when the soil is moist. Roots will not grow in dry or waterlogged soil.



Step 1

Make furrows 5cm deep (2 inches).



Place fertilizer in furrow and cover fertilizer with 2½ cm (1 inch) of soil. Spacing between furrows should be 45cm (1½ feet).



Step 2

Apply fertilizer carrying phosphorus. If using either TSP, Sympal or SSP, apply at 63, 123, 140 kg of fertilizer per acre, respectively (*see table on opposite page*). Fertilizer can be measured using a teaspoon, matchbox or soda bottle top.



Types of phosphate fertilizers that can be applied and how much to apply if using a teaspoon, matchbox or soda bottle-top.



A



B



C

	Rate (kg per acre)	Distance along furrow to be applied (in feet)		
		Teaspoon	Matchbox	Soda bottle-top
TSP (Triple Super Phosphate)	63	7	8	2
Sympal	123	3½	9½	2½
SSP (Single Super Phosphate)	140	3	18½	4½

If using DAP, use the recommendations for TSP. If using the guidelines for teaspoon (A), matchbox (B) or soda bottle-top (C), take level scoops as shown.

NOTE: Do not use the same teaspoon for eating or serving food.

Step 3

Inoculate the seed (as explained on page 4) and sow directly by placing seed in furrow. Distance from one seed to the next within a furrow should be 5 cm (2 inches). Cover the seed with 1½cm (1 inch) of soil.





Crop management



Step 1

Keep the fields free of weeds. The first weeding should be done about 2 weeks after planting and second, 5-6 weeks after planting. If soybean growth is very good, the second weeding may not be needed.



Step 2

To control leaf diseases, spray fungicides at correct rates given on the package. First at flowering, and thereafter once or twice as recommended, usually 21 days after first spraying.



Step 3

If pests are damaging leaves, DO NOT spray as this is unlikely to reduce the yield; BUT if they are damaging pods, seek advice on how to use insecticides.



Step 4

If insecticide or fungicides are used, keep records of date, target pest, name of insecticide or fungicide used and area treated. Seek advice if you are not sure what product to use.

Safely dispose any empty chemical containers by piercing and then burying.



Harvesting and cleaning the grain



Step 1

Harvest early when nearly all (9 out of 10 pods) are brown and dry, preferably in the morning, to avoid pods opening and losing the seed.



Step 2

Dry harvested crop in the open sun and protect it from the rain. Thresh and separate on a clean surface such as a tarpaulin.



Step 3

Clean and re-dry to a moisture content of 11-12%. If a moisture meter is unavailable, bite a few seeds with two teeth. If the seeds stick between teeth then the moisture content is above 12%. If the seeds crack, the moisture content is 12% or below and can be stored.



Step 4

Ensure that soybean grain is not contaminated with live insects, or foreign materials, and has no bad odour.



Proper storage, quality control and marketing



Step 1

Put clean, dry grains in clean bags, do not use recycled fertilizer, pesticide or other chemical bags.

Grain bags supplied may be reused up to 5 times.



Step 2

Store soybean grain in a cool, dry and ventilated place, like a hut or a room.



Step 3

- Deliver grain to your nearest collection point on time or store and deliver to markets at the appropriate time.
- Ensure that grain meets quality standards set by buyers.
- If delivered to collection point, report information of soybean variety and payment method to collection point manager.
- Allow for appropriate duration of time for payment of soybeans after their acceptance at the collection point.

This booklet was produced in October 2012 for farmers in Africa. It is available on the website of the Africa Soil Health Consortium (ASHC) as Creative Commons material which can be reproduced and re-used without permission - provided the ASHC is credited.

The content was developed as a result of partnership between N2Africa, Wageningen University, International Center for Tropical Agriculture (CIAT), International Institute of Tropical Agriculture (IITA) and ASHC.

**For more information email N2Africa:
office@wur.nl**



Working in partnership to create down-to-earth messages on integrated soil fertility management