



SUGAR BEANS

Production & Spray Guide



Sugar Bean Production Guide

“Integrated Crop Solution”

General Description

The dry bean is an important field crop because of its high protein content and dietary benefits. Dry Beans are a warm season legume being upright or bush type plants. Small flowers are produced in clusters at various nodes on the stalks and can be either white or lavender in colour. The flowers are self-pollinating. Flowering continues for 2 – 3 weeks, so there can be a mixture of new pods, half developed pods and pods nearing full development. This calls for good scouting for pest management. The first half of the growing period is vegetative development and the latter half is reproduction. The crop matures in 85 to 120 days from planting. As the pods mature they change from green to light brown or tan. Each pod can contain 2-4 seeds. Yields can vary from 600kg per hectare up to 1.5 tons per hectare.

Planting

Generally early January to late February in the Highveld and right through to mid- August in the Low veld frost free areas. The soil temperature must be above 13°C for optimum germination results. Dry Bean production requires a warm climate with temperatures between 18° C - 24° C. The maximum temperature during the flowering period should not exceed 30° C as high temperatures will cause flower drop and thus low pod set, resulting in depressed yields. Beans require a minimum of 400mm to 500mm rain fall during its growing season but totals of 600mm to 650mm is considered ideal. Irrigation is also required where the crop is growing out of the rains and in winter production in the Low Veld area. The critical growth stage requiring rainfall or irrigation is during flowering and pod set. Irrigation should stop when roughly 25% of the bean pods have turned yellow.

Soil Preparation

The soil needs to be ploughed or ripped to a depth of 300mm then disced to get a good tilth, the soil needs to be firm at planting and a level seedbed prepared to ensure even germination. A level firm seed bed ensures good surface contact between the seed and soil. Planting depth of the seed should be 2.5cm to 4.5cm below the soil surface

Spacing

The optimum spacing between rows is 75cm. A spacing of 90cm is also used when agricultural machinery is set up for maize planting. Seed spacing in row is between 60mm to 75mm. Generally around 177,000 to 200,000 plants per hectare will give good results.

Fertilization

Beans will do best with a soil PH of 5.5 – 5.8 . Beans are very sensitive to acidic soils. If the PH is not at these levels then apply lime as per the soil sample recommendations. Beans can be planted into soils which have been well fertilized for previous crops though slight top ups at planting will be beneficial. A rate of 250kg per hectare of Compound "D" drilled in with the planter, or broadcasted with a Vicon before the final discing before planting. Calcium Sulphate (Gypsum) at 250kg per hectare as a top dressing just prior to flowering will help with pod set. If a previous crops residue has been ploughed or disced in then extra Nitrogen will be needed to help composting or breaking down of the material. Discuss this with your Agronomist regarding rates. Beans are not capable of satisfying all their Nitrogen requirements through Nitrogen fixation hence the need for a basal fertilizer with good levels of N.

Weed Problems

This is very important in growing a dry bean crop. Bean plants compete poorly with weeds as they are low growing and do not over shadow weeds. Weeds that are not controlled will interfere with the harvesting and threshing of the crop.



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Stage	Pre-Plant	Planting to Emergence	Vegetative	First Flowers	Pod Development & First Picking	Peak Picking
Days:	-7	0-10	10-40	30-40	40-60	+65
Pest Problems						
Bean Stem Maggot		Apron Star Seed Dress				
Beetles				Karate Zeon		
Cutworms		Karate Zeon				
Leafminer			Trigard / Dymamec			
Red Spider Mites				Dynamec / Polo		
Podworm & Caterpillars				Ampligo / Match / Karate Zeon / Proclaim		
Aphids & Whitefly				Actara / Ampligo / Polo/Chess		
Disease Problems						
Seed/Soil Disease		Apron Star Seed Dress				
Bacterial Complex			Amistar Top / Score			
Anthracnose				Bravo / Amistar Top		
Rust			Amistar Top/Bravo / CopperOxy			
Weed Problems						
Below are off-labe suggestions; grower must do own tests for crop damage.						
Before planting - post emergence perennials	Touchdown					
Before planting - post emergence annuals	Gramoxone / Touchdown					
Pre-emergence: grasses		Dual Magnum				
Post-emergence: grasses					Fusilade Forte	
Pre-emergence: grasses + Broadleaf		Bataleur Gold				
Post-emergence: Nutgrass						Servan

CROP	DAYS TO MATURITY		PLANT SPACING (cm)		PLANTS/HA X1000	AVERAGE SEED PER GRAM	SEED REQUIREMENT (Kg/Ha)	COMMON PESTS	COMMON DISEASES
	WARM	COOL	IN ROW	BETWEEN					
Garden Beans	55	65	2x7*	50	285	4-5	75	Bollworm	Rust Anthracnose Halo Blight
Beetroot	80	110	10*	20	450	50-60	8	Aphids	<i>Ccpa</i> <i>Rzoc</i>
Broccoli	70	90	40	70	36	225	0.2	Diamondback Moth Aphids	Black Rot White Blister
Butternut	90	120	50	100	20	8-10	3	Fruit Fly	Gummy Stem Blight Anthracnose
Cabbage	80	110	40	50	30	300	0.2	Diamondback Moth Aphids	Black Rot Club-root S
Carrot	90	120	3*	15	1100	800	2	Nematodes	<i>ta</i>
Cauliflower	85	110	40	70	36	240	0.2	Diamondback Moth Aphids	Black Rot Club-root
Cucumber Field	60	85	40	150	16	40	16 000 Seeds	Red Spidermite Aphids Whitefly	<i>Fm</i> Powdery Mildew Downy Mildew
Cucumber Tunnel	65	85	45	150	16	40	3 per m ²	Red Spidermite Aphids Whitefly	<i>Fm</i> Powdery Mildew Downy Mildew
Eggplant	75	90	50	75	27	220	0.15	Thrips Aphids	Powdery Mildew
Gem Squash Semi-bush	50	70	35	150	18-22	10-12	4	Pumpkin Fly	Powdery Mildew
Gem Squash Vine	55	80	50	150	14	10-12	2	Aphids	Virus Diseases
Hubbard Squash	110	130	100	150	7	6	1.5	Pumpkin Fly Aphids	Powdery Mildew
Lettuce	50	70	30	60	55	800-1000	0.05-0.07	Aphids Leafminer	Powdery Mildew Bacterial Rot
Marrows	35	55	40	150	18	8-10	2.5	Fruit Fly Whitefly	Virus Diseases Powdery Mildew
Melon	85	100	40	150	16	20	1	Fruit Fly	Anthracnose Fusarium Root Rot
Onions	170	190	8*	20	850-1000	250	3.5	Thrips	White Bulb Rot Pink Root Rot <i>ta</i>
Peppers	70	85	2x40*	150	30-35	150	0.25	Aphids Thrips	Virus Diseases Phytophthora Root Rot
Pumpkin Semi-bush	90	120	80	180	8	4	2	Pumpkin Fly Cutworm	Powdery Mildew Fruit Rots
Pumpkin Vine	120	140	100	180	5	4	1.5	Pumpkin Fly Cutworm	Powdery Mildew Fruit Rots
Sweet corn	75	100	20	90	55	8	8	Stalk Borer Bollworm	Rust NCLB
Swiss chard	60	75	20*	45	200	60	4-6	Aphids	<i>Ccpa</i>
Tomato	80	100	40	150	16	250	0.1	Bollworm Whitefly Nematodes	Blight Bacterial Wilt Viruses
Watermelon	80	90	50	180	6	20	0.3	Fruit Fly	Gummy Stem Blight Anthracnose