BUTTERNUT

Production & Spray Guide

80TH ANNIVERSARY
SEED·CO
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Squashes Production Guide

"Integrated Crop Solution"

Soil requirements

Butternuts prefer well drained sandy loam to loam soils with a high calcium content. Butternuts like growing in soils with a PH value of between 5.5 to 6.3. If less than 5.5 agricultural lime should be applied in accordance with soil analysis results. Low PH soils have Molybdenum and Calcium deficiencies which reduce the keeping quality of the fruits. Soil temperatures are important for good germination. Germination takes up to 3 weeks in soil temperatures between 10°C and 13°C, which makes the growth and management of the crop difficult. Soil temperatures around 15°C will result in good germination of around 7 days. 20°C gives maximum root development and even crops. Fields need to be prepared either by ploughing or rip and disc. If direct seeding, soil should be worked to a good tilth without too many big clods. It should be as level as possible to ensure even plant emergence, so irrigation or rainfall cannot form puddles. Be careful of crusting at emergence a light irrigation may be necessary.

Climatic conditions

Butternuts are far less sensitive to unfavourable growing conditions than most other cucurbits. Butternuts prefer a warm dry climate and best growing conditions are when the temperature is between 20°C - 25°C with a maximum of 32°C, night temperatures not lower than 10°C. At higher temperature range as indicated female flowers can abort and young fruit can wilt and shrivel. There is a tendency for plants to produce less female flowers with high temperatures and long days.

Planting time

For advice on varieties for seasons and the market place contact a Prime Seed Agronomist for his recommendations. Butternuts can be planted as soon as the risk of frost is over and temperatures are between the ranges stated earlier. Timing is important when planting so crops can mature before the hot humid summer rainfall conditions form as this can result in serious leaf disease problems. Aphids are usually a problem also at this time and can spread virus diseases very quickly. Direct seeding makes the germinating seed susceptible to attack by pathogens such as Fuserium and Rhizoctonia. Also rats and mice are a huge problem as they dig up and eat the germinating seed. Baiting with rat poison for these pests is most important to avoid heavy seed losses. A recommendation is for F1 hybrid seeds to be raised in a recognised nursery like Prime Plants Nursery because of the high cost of the seed. By doing speedlings early while soil temperatures warm up the crop will be 2 – 3 weeks earlier than if direct seeded. Depth for direct planting of seed is 25 – 30mm, for speedlings just cover to level of the top of the plug. Make sure good plug to soil contact is achieved to ensure rapid take off of seedlings in the fertilized enriched soil.

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Spacing

This depends on the cultivar, if it is a semi bush or vine type, the market place and the irrigation system to be used. With overhead irrigation a single row 1.5m to 1.8m between rows and plants 0.5m to 0.8m in row. This gives a population of approximately 11,000 – 16,000 plants per hectare. Semi bush types can be planted in double rows 0.5m- 0.6m apart with plants 0.5m apart in row and 1.5m to 1.8m between the double rows. This gives 16,700 – 20,000 plants per hectare. This can help with weed control and gives smaller fruits where this is desirable for the market place.

Irrigation

As the butternut plant is of desert origin it has a determined root system. Butternut plants have a deep tap root to utilise water deep down in the soil whereas the shallow fibrous root system draws the water just below the surface. Butternuts irrigated by overhead sprinklers have root systems which spread at much the same rate as the vines on the surface. Drip irrigation makes an “Onion” shape of water in the soil and the roots are confined to the “Onion”. Over irrigation with drip if incorrectly applied causes a lot of problems with Butternuts. The soil will get over saturated in the “Onion” zone depleting the oxygen level in the soil so no roots will develop there. Calcium will therefore not be easily available in over irrigated soil leading to calcium deficiency and blossom end rot. It is usually preferable to under irrigate the crop while young except at the critical stage of fruit set when the water amount should be increased. Clay soils tend to waterlog easily so let them dry out to some extent between irrigations, to allow oxygen to re enter the root zone. Sandy soils require more regular irrigation to keep the soil moist. Loam to clay loam soils need only to be watered every second day.

Fertilization

For a good crop of Butternuts the plant will require some
200kg N: 50kg P: 500kg K, 120kg Ca and 70kg Mg per hectare. A guide is to use 600/800kgs compound
“D” per hectare. 3 top dressings of 75kg per hectare AN at 3-5-7 weeks. All cucurbits are sensitive to Molybdenum deficiency. Symptoms are stunted growth and overall yellowing of the leaves. If the PH is above 5.5 more Molybdenum will be available. Seedlings can be sprayed with Sodium Molybdate at 120g in 500 litres water per hectare, which should be sufficient but a second spray can be done at fruit set. Boron is essential for root hair growth through which Calcium is taken up. Boron can be sprayed on shortly before fruit set and 2 – 3 weeks later. Boron deficiency is indicated by a clear yellowish to light green rim to the leaf. Copper sprays can cause similar symptoms and stunt leaves so be careful with excess copper sprays.

Under irrigation the crop will emerge more quickly and will mature earlier when planted shallow and the seed covered by leveling the soil. Alternatively planting deeper but covering the seed with 2.5 – 5cm of soil then re-ridging two or three times during growth will produce similar

Pollination

Bees are the main pollinators of the Butternut crop. Bees are thought to be responsible for over 90%of its pollination. The female flower must be visited several times for efficient pollination. The use of 2 to 3 beehives per hectare is recommended.

Harvesting

Butternuts usually take 85 to 100 days to harvest. Before the fruits are ready for harvest the stage of ripeness should show the rind an even beige in colour, with no green ground colour or blotches, the stalk hard but not dry. There may still be green stripes at the stem end. At this stage the fruits are suitable to the local market, but the internal colour will be slightly pale and keeping quality poor. To achieve a high sugar content and a dark orange flesh leave the fruit to ripen on the vine. Once the green stripes on the fruits have almost gone, plants can be left to dry out. If irrigation continues at this stage the fruits will swell and crack. When harvesting cut the stalk 10 to 15mm above the thickened attachment to the fruit, this cut must not leave sharp edges or a point which could pierce other fruits during handling and storage.

Yields 30 to 45 tons per hectare.

Squashes Spray Guide

Stage	Pre-Plant	Planting to Emergence	Vegetative	First Flowers	Pod Development & First Picking	Peak Picking
Days (Courgettes):	-7	0-10	10-28	28-35	35-42	45-60
Days (Butternut):	-7	0-10	10-42	42-49	49-56	100
Pest Problems:						
Nemetodes	Solvigo					
Soil Pests		Actara Soil Drench				
Cutworm		Karate Zeon				
Leafminer			Trigard/Dynamec/			
Red Spider Mites			Curacron/dynamec/Polo			
Pumkin Fly				Lebaycid		
Disease Problems						
Damping Off		Apron Star Seed Dress				
Bacterial Complex		Amistar Top / Score				
Powdery Mildew			Revus/Ridomil Gold/Folio			
Anthracnose		Bravo / Amistar Top / Score				
Virus Complex		Actara Soil Drench				
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					
Post-emergence: grasses			Fusilade Forte			
Nutgrass (Yellow + Purple)			Servian			

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SEED CO GROWER'S GUIDE

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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	*Ccpa* *Rzoct*
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	*ta*
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	*Fm* Powdery Mildew Downy Mildew
Cucumber Tunnel	65	85	45	150	16	40	3 per m²	Red Spidermite Aphids Whitefly	*Fm* 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 *ta*
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	*Ccpa*
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

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