



LETTUCE

Production & Spray Guide



Lettuce Production Guide

“Integrated Crop Solution”

Soils

Lettuce is fairly tolerant of soil type but do well on light sand to sandy loams. As Lettuce has a very shallow root system it can be grown on relatively shallow soils provided a good irrigation system is in place so favourable soil moisture can be maintained. Due to the shallow root system of Lettuce, the majority of the roots only go to a depth of 300mm. Therefore nutrient and water requirements need to be concentrated in this small volume of soil. If planting in soils that stain i.e. red soils, a mulch between the soil and the bottom leaves will keep the soil stain from spoiling the heads and making them difficult to sell. Washing off soil stain causes bacterial rot so is not recommended. Soil PH should be between 5.5 - 6.

General

As Lettuce is normally a cool weather crop demand for it in the cooler months is quite low. Consumer's main demand for Lettuce is during the hot summer months when salads are very desirable. Lettuce heads produced in summer receive a higher price than those grown in the cooler months. Summer production of Lettuce can be done, however, some precautions need to be addressed to safe guard the viability of the crop. Varieties need to be chosen carefully for the cool winter production and hot humid summer production. Summer varieties need to have a good tolerance to bolting and good disease resistance. Most varieties perform equally well in the cooler months so ask advise of a Prime Seed Agronomist who will give you the best variety for your planting program. The most favourable temperature for production is a daily mean of between 15° C and 18° C. Lettuce however will perform in a range of 17° C – 27 °C during the day and 2° C to 12° C night temperatures, with careful variety selection.

Cultural Practices

For best results soils need to be prepared in advance and beds made up for summer production. Raised beds of at least 20cm – 30cm high need to be made to help drainage with excess rainfall. Planting on the flat in winter is acceptable. Drip irrigation is the preferred method to irrigate Lettuce as there is no soil splash and soiling of the heads. If overhead irrigation is to be used a smaller nozzle size should be fitted to the sprinkler head to avoid big droplets hitting the soil surface and splashing the heads with soil particles. As soil moisture is an important factor in Lettuce production the level of available water in the root zone should not get below 50% holding capacity before the next cycle. Careful planning of irrigation is necessary regarding soil types and the time of year. Amounts of water to be applied vary from 18mm on sandy soils to 50mm on heavy soils per cycle. Lettuce needs lighter and more frequent irrigations more so than many other crops. Frequent irrigations however, especially in summer production favour conditions for development of several diseases.

Planting

The use of quality seedlings is highly recommended to achieve a good uniform crop. Prime Plants Nursery does Lettuce seedlings, both the frilly type and standard varieties. For planning purposes seedlings normally take about 5 weeks in the Nursery in the winter months to just under 4 weeks in the warmer months. Seedlings must be well hardened before planting during the summer as they will be subjected to high temperatures in the field after transplanting. Mulching of summer production is definitely recommended. After transplanting the seedling a mulch using wheat straw, grass or saw dust is advisable. This will assist in lowering the soil temperature, cooling the crop, conserving moisture and preventing soil splash.

Spacing

During summer because of heavy rainfall which cannot be controlled planting on raised beds is recommended. These beds can be made with a distance of 1.5m – 1.8m bed centre to bed centre. 3 rows marked out on the top of the bed at 30cm apart with seedlings placed 25cm in row, giving round 80,000 plants per hectare. For larger size heads distance in row can be increased to 30cm giving a lower plant population in order to achieve a larger head size. On the flat, rows can be between 35cm – 45cm apart and in row spacing between 25cm – 35cm. This gives a plant population of about 60,000 to 100,000 plants per hectare. Head size for specific large head orders use the wider spacing.

Fertilization

Get a soil analysis done before planting. A general recommendation is to use a basal dressing of Compound “B” at a rate of 500 – 600kg per hectare applied pre planting. If the fertilizer is cupped in by hand to a planting hole for a seedling make sure the fertilizer is well mixed in the hole with the soil to prevent root burn of the seedling.

Top dressing

This takes place about 8 – 10 weeks after transplanting. A visual inspection is done to check if the heads have reached the desired firmness and size. Loose leaf or frilly lettuce types are harvested when the leaves have grown to a reasonable size. Using a long blade knife cut the stalk just above the level of the soil and retain most of the wrapper leaves. Harvest when the plants have dried out and in the cool of the early morning before the day temperature gets too hot and the plants begin to wilt. Do not harvest the heads just after rain or irrigation as this makes the leaves crisp and brittle because they will have absorbed a lot of water and the leaves will break easily. After cutting, damaged, diseased and discoloured leaves can be removed and the cut end tidied up before placing in the crate. Do not over pack the crates and if possible not to stack more than 2 high. Move heads quickly once harvested into a field shelter with wet walls to prevent dehydration before transport to the packing area. Once at the pack shed storage under refrigeration with a temperature of 0°C and a R.H. of 95% lettuce heads can be stored for up to 3 weeks if there is a glut in the market . However quicker

movement to market is preferable. If there is no refrigeration the crop will have to be moved to market the same day it is cut. Lettuce heads can weigh from 500g to over 1.2kg depending on the time of the year. Yields can be from 25 – 30 tons per hectare. If properly grown lettuce heads should be firm, fresh, clean and crisp and not have a bitter taste.

Transport

During transport to market if the heads are being delivered in an open vehicle it is very important to cover the lettuce heads with a damp cloth type cover to prevent wind burn and dehydration. If the delivery vehicle has an insulated covered back be sure that the temperature inside does not go too high as this can cause dehydration and wilting.



Lettuce Spray Guide

Stage	Nursery	Transplanting	Vegetative	First flowers
Days:	0 - 42	25-42	40-70	70-90
Pest Problems				
Nematodes	Solvigo ↑			
Soil Pests & Aphids		Actara Soil drench / Solvigo ↑		
Cutworms		Karate Zeon ↑		
Leafminers		Dynavec / Trigard ↑		
Snails & Slugs		Mesuroi snail pellets ↑		
Thrips		Actara / Ampligo ↑		
Disease Problems				
Damping off	Apron Star Seed Dress ↑			
Downy mildew		Revus / Ridomil Gold MZ ↑		
Sclerotinia Drop		Ortiva / Amistar Top ↑		
Virus complex		Actara Soil Drench / Dip ↑		
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		Dual Magnum ↑		

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