

# ELISA

## Butter Head Lettuce

### OUTSTANDING QUALITIES

- ◆ MEDIUM TO DARK GREEN LEAVES
- ◆ WIDELY ADAPTABLE
- ◆ MEDIUM LARGE HEADS
- ◆ SLOW TO BOLT

**Elisa** is a fast growing butter head lettuce that matures within 65 to 75 days from transplant. **Elisa** produces high quality heads with medium to dark green, thick leaves. Heads are medium-large in size. **Elisa** can be used for hydroponic systems as well as open field production. Good heat and cold tolerance and slow to bolt.



### SPECIAL VARIETAL REQUIREMENTS

- Widely adapted, except in extreme heat or cold conditions
- Contact area representative for a sowing guide

CHARACTERISTIC*	ELISA
KIND	Lettuce ( <i>Lactuca sativa</i> L. var. <i>capitata</i> L.)
TYPE	Butter head
MATURITY	Approximately 65 – 75 days from transplant to harvest
SEASON	All year round, except for extreme heat or cold conditions
HEAD SIZE	Medium-large
HEAD COLOUR	Medium to dark green
BUTT CORE	Medium
HEAD SOLIDITY	Medium to good
BOLTING REACTION	Slow
UNIFORMITY	Very good
LEAF COVER	Fair to good
MARKETS / END USE	Novelty, pillow pack and home garden
POPULATION GUIDE	<b>Hydroponic production:</b> 80 000 – 100 000 plants final stand per ha (30 cm in row, 30 cm between rows) <b>Open field production:</b> 70 000 – 80 000 plants final stand per ha (30 cm in row, 60 cm between rows)
SPECIAL FEATURES	Widely adapted, except in extreme heat or cold conditions

\* Characteristics given are affected by production methods such as soil type, nutrition, planting population, planting date and climatic conditions. Please read disclaimer.

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**Resistance:** is the ability of a plant variety to restrict the growth and development of a specified pest or pathogen and/or the damage they cause when compared to susceptible plant varieties under similar environmental conditions and pest or pathogen pressure. Resistant varieties may exhibit some disease symptoms or damage under heavy pest or pathogen pressure (HR = High resistance, IR = Intermediate resistance).

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## GENERAL TIPS FOR LETTUCE PRODUCTION

### Butter head lettuce (*Lactuca sativa* L. var. *capitata* L.) description

The butter lettuce can easily be identified by its smooth, oily, soft textured leaves forming a soft head which is smaller than the crisp head types. The leaves are broader, shorter and wrinkled. The outer leaves can be light to dark green, while the inner leaves are creamy yellow. Some cultivars have a red pigmentation. Choose a variety that is easy to harvest, pack and handle.

### Disease reaction definitions:

**Resistance:** is the ability of a plant variety to restrict the growth and development of a specified pest or pathogen and/or the damage they cause when compared to susceptible plant varieties under similar environmental conditions and pest or pathogen pressure. Resistant varieties may exhibit some disease symptoms or damage under heavy pest or pathogen pressure. Two levels of resistance are defined:

**High/standard resistance (HR):** plant varieties that highly restrict the growth and development of the specified pest or pathogen under normal pest or pathogen pressure when compared to susceptible varieties. These plant varieties may, however, exhibit some symptoms or damage under heavy pest or pathogen pressure.

**Moderate/intermediate resistance (IR):** plant varieties that restrict the growth and development of the specified pest or pathogen, but may exhibit a greater range of symptoms or damage compared to resistant varieties. Moderately/intermediately resistant plant varieties will still show less severe symptoms or damage than susceptible plant varieties when grown under similar environmental conditions and/or pest or pathogen pressure.

**Tolerance (T):** is the ability of a plant variety to endure **abiotic stress** without serious consequences for growth, appearance and yield. Vegetable companies will continue to use tolerance for abiotic stress.

### Post-harvest handling

Lettuce is highly perishable and deteriorates rapidly with increasing temperatures. If lettuce is harvested when it is cool, handled with care and quickly refrigerated (at 0.5 – 4 °C and RH 95 %) it can be stored for up to 3 weeks. However, the higher the storage temperature, the shorter the shelf life of lettuce become. Transport of lettuce should be limited to short distances as leaves are damaged easily.

### Bolting of lettuce

Bolting refers to the plant flowering and producing seed prematurely. In a lettuce crop this would result in the produce being unmarketable. The following factors can cause bolting of lettuce:

- Wrong sowing time
- Cold temperatures, especially below 7 °C
- Excessive fertilisation of seedlings
- Cold grown seedlings

- Oversized seedlings at transplant
- Difference in temperatures between seedling nursery and farm
- Stress caused by heat, drought, water logging and disease
- Diurnal temperature swings

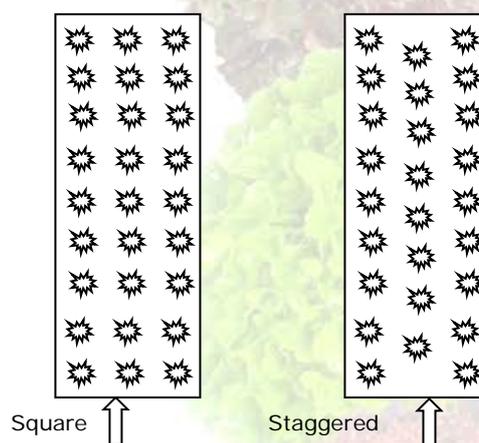
### Mixes for pillow packing

This trend is developing all over the world and is expected to become increasingly popular. Mesclun mixed greens are packed in plastic bags that are inflated and sealed to create a pillow. Mesclun is the term for fresh, tender greens combined for their textures, flavours and colours grown and marketed together. Pillow packing ingredients includes half a dozen or more, of any of the following lettuces as well as other crops: Crisp head, butter head, cos, leaf, red leaf and other lettuces mixed with other crops such as endive, sorrel, spinach, parsley, watercress, chives, garlic chives, fennel, chicory, baby corn, mustard, spring onion and blossoms (pak choi, borage and violets).

### Spacing and plant population in gravel flow technique systems

Lettuce spacing depends very much on the hydroponic system used, type of lettuce grown, variety as well as the specific climatic conditions. Certain crisp head varieties will produce smaller pre-pack heads whereby other varieties can produce very large heads. Because of these reasons it is difficult to give the exact spacing of lettuce. Lettuce seedlings can be planted in either a square or staggered formation as illustrated below:

#### Planting method



Many lettuce varieties can be spaced at approximately 30 x 30 cm spacing within for instance gravel beds. That would result in approximately 90 plants in a bed of 1 m wide and 10 m long. This would probably differ from variety to variety. Usually the plant population in hydroponic systems is higher than with open field lettuce production.

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