

## High Density Planting vs. Conventional Planting of Blueberry, Raspberry, Blackberry

- A. The major production areas for blueberry, raspberry, and blackberry plants in high density plantings and tunnel growing (growing in greenhouses) are located in latitudes in the Northern and Southern Hemispheres at 27 degrees latitude to north and south to the equator. The temperatures may vary slightly. Some growers in the greater latitudes than 27 degrees may choose to plant small fruit plants for other reasons, but it is not as common.
  - B. Prior to this millennium, growers focused on growing regions north and south of 27 degrees to produce these crops.
  - C. These berries have become a very important crop to growers in the world because of the health benefits, high demand, and high profitability.
  - D. With the increasing consumption of berries, growers in tropical climates and countries with, are growing the berries with large success. There are a select few cultivars that will grow successfully in Latitudes of 25 to the equator. The selected cultivars of berry plants are growing successfully, with temperatures in excess of 5 degrees C in this warmer latitude.
  - E. Growers of the berries in the tropical and warm climates became successful growing these berries in high density situations or in high tunnels. These growers chose high density planting for several reasons.
  - F. Plant densities:
    - a. Raspberry - Conventional 60 cm. x 3 meter. High density 50 cm. x 2.2 meter.
    - b. Blackberry – Conventional 1.2 meter x 3 meter. High density 50 cm. x 2.4 meter.
    - c. Blueberry – Conventional 1 meter x 3 meter. High density 60 cm. x 2.2 meter.
1. Pros to growing berries in tunnels.
    - a. Yields in the tunnels will be more consistent every year compared to growing outdoors.
    - b. Yields of Blueberry, Raspberry, and Blackberry increase by double in most situations if grown in tunnels verses outdoor growing.
    - c. Fruit quality of fruits is higher.
    - d. Plants remain healthy due to protection from climate fluctuations.
    - e. Water requirements are less. This is a cost savings if the water must be treated.
    - f. Fertilizer requirements are less.
    - g. Soil amending is less costly per hectare.
    - h. Freezes during flowering is minimized.
    - i. Excess rainfall will not affect the plants.
    - j. Bird control of eating fruits is 100% controlled.
    - k. Plants are protected from extreme winds.

2. Cons for growing berries in high tunnels vs. conventional.
  - a. Fungal infections can be higher and more difficult to control.
  - b. Insects can be more difficult to control.
  - c. Higher labor costs.
  - d. Pollination is normally accomplished using bumble bee stored inside the tunnels.
  - e. Higher plant cost per hectare.
  - f. Initial cost of high tunnels are costly for many growers.
  
3. Pros for growing berries at high density vs. conventional in 27 degree to equator latitude.
  - a. Fungal infections are reduced and easier to control.
  - b. Insects are easier to control.
  - c. Yields are higher per hectare.
  - d. In the tropical climate, this is the preferred method.
4. Cons for growing berries at high density.
  - a. Higher plant cost per hectare.

## B. CONVENTIONAL PLANTING

1. I will need to state that 98% of the blueberry, raspberry, and blackberry area in the world are planted conventionally.
2. Areas in the world that grow a percentage of fruit crops in greenhouses or tunnels.
  - a. Netherlands – Summers are short, the wet climate protects the crops.
  - b. Spain – Grows to protect the fruit from the outdoor elements for the perfect fruits for North Europe.
  - c. Mexico – Soils are alkaline, it is less expensive to prepare the soils for high density plantings. Protects plants and fruits from excess rainfall.
  - d. U.S. – Grows Raspberry and Blackberry in greenhouses for protection from the climates. Greenhouses produce higher yields and early ripening for all berries.
  - e. Chile South America – Grows blueberries for early ripening and wind protection.
3. Conventional Planting Pros:
  - a. Cultural practices are less labor intensive. This is the main reason in the U.S. and other major berry growing regions.
  - b. Harvesting methods can be accomplished with mechanical or hand.
  - c. Lower plant cost per hectare.
  - d. Pollination is easily accomplished with wild pollinators. Bees are usually rented to pollinate the flowers.
4. Cons for Conventional Planting:

- a. Wind damage can occur.
  - b. Freeze can occur during flowering. Protecting the flowers can be accomplished cost effectively.
  - c. Excess rainfall can occur during harvest time.
  - d. Hail can damage part of the plants.
  - e. Bird control during fruiting will be difficult to control.
  - f. Animal control is difficult to control.
5. Conventional spacing is the selected method to grow plants for long term production, blueberry plants are productive for 30 plus years, Raspberries and Blackberries 10- 15 years under normal growing situations.
  6. In areas where no chilling occurs such as in latitudes 27 to the equator, yields will decrease earlier in age of the plants. This is due to the plant growing 12 months per year.