VEGETABLE CULTIVAR AND CULTURAL TRIALS 2002

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**High Tunnel Trials**

Trials conducted at the University of Saskatchewan and CSIDC have demonstrated the potential to enhance earliness, yields and quality of warm season vegetable crops using high tunnels. As the high tunnels are costly to construct, growers need to identify and utilize management practices that optimize yields within the tunnels.

**Project 1. Sequential planting of Melons.** Experience with high tunnel production of melons indicates that the majority of the fruit mature within a 10 day period. Ideally the melon production would be more evenly spread through the season. One potential means for spreading out the harvest would be to sequentially plant. In 2002, one block of 3 week old transplants of the high yielding muskmelon cv. “Earligold” was planted into the high tunnel on May 13 and another block May 23. The plants within each block were spaced 60 cm apart within the row, with 60 cm between rows. The total area for each block was 15 m$^2$. The fruit were harvested at full slip. The harvest continued until the first killing frost in late September.

The block transplanted on May 13, began to fruit about a week earlier than the late transplanted block but otherwise the fruit yield patterns for the two plantings were very similar. Both plantings ceased to produce significant numbers of fruit after the last week in August. This suggests that growing conditions at this time were no longer suited to the crop. Total production by the early planted crop was 20% greater than the later planting. Fruit size and quality were comparable in the two plantings.

Conclusion - early planting in the high tunnels is desirable as it provides both early yields and an opportunity to achieve maximum yield potential. Delaying planting appears to have limited potential as a means for extending the harvest season. Melons are an indeterminant crop capable of continuing to fruit as long as growing conditions remain favorable.

**Trial 2. Pepper Cultivars for High tunnel Production.** Although peppers are a tropical plant, in previous high tunnel trials the peppers had shown symptoms of heat stress. This trial evaluated several bell pepper cultivars which had performed well under standard production conditions to determine their suitability for use in the high tunnels. Six week old, greenhouse-grown seedlings of “Super Heavy Weight”, “King Arthur”, “Camelot” and “Legionnaire” bell peppers were transplanted into the high tunnels in late May. Standard management practices were utilized. The crop was once-over harvested just prior to frost in late September. Yields of mature red, mature green and immature fruit were measured.

**Results** - early in the season, all of the cultivars appeared very vigorous. However, as the plants began to flower, they also began to show signs of heat stress. The plants became leggy and yellow and many of the flowers failed to produce fruit. Problems with heat stress were less obvious adjacent to the ventilated edges of the high tunnel or near the doors, where temperatures would have been cooler.
Total yields of the four cultivars tested were very similar, but they varied considerably in the proportion of the fruit that matured to red prior to harvest. Over 40% of the fruit produced by King Arthur were mature red at harvest, while none of the fruit produced by Camelot had begun to change color. As red peppers are worth much more than greens, cultivars like King Arthur which combine earliness and good yields are recommended for production in the high tunnels. Until high yielding, heat resistant varieties are identified, growers will need to employ management practices that reduce heat stress in the high tunnels.