

## BULK COOLING OF HARVESTED SNAP BEANS

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The preservation of snap bean quality between the time of harvesting and processing is sometimes a difficult problem. Bean deterioration is closely related to bean temperature; thus, cooling the beans is the most practical method of preserving quality.

During the past two years, studies of ventilation as a cooling method have been conducted at the University of Tennessee. In 1973 a blower was used to force air through beans held inside a container to simulate conditions inside a tractor trailer. Results<sup>1</sup> indicated a significant cooling effect due to evaporation of moisture from the beans. However, in hot, dry weather, this evaporation was sufficient to cause visible dehydration of the beans. Thus, forced ventilation of snap beans may not be suitable unless a satisfactory method of moisture addition is used.

In 1974, a humidifier box was used to add moisture to the air by evaporation and provide cooling of the incoming air as a result of this evaporation. This device was used for six laboratory tests during the summer of 1974. Air temperatures, moisture content and flow rate were measured in addition to bean temperatures at selected locations in the bulk container. Bean samples were also taken before and after the tests for moisture content and measurement of selected food quality attributes. Analyses of all results are not yet complete. However, preliminary research results indicate that ventilation - with moisture addition - is an effective cooling method which can be adapted for use in commercial shipments of freshly harvested snap beans.

<sup>1</sup> Wilhelm, Luther R., Charles A. Mullins and J. L. Collins. 1973.  
 "Forced Ventilation Cooling of Snap Beans in Bulk Containers."  
 ASAE Paper No. 73-3505.

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SEGREGATION OF A SEMI-LETHAL OR CRIPPLED CONDITION  
 FROM CROSSES INVOLVING PI 165435

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In a genetic study performed to determine the inheritance of resistance to seed decay and pre-emergence damping off in snapbeans caused by Pythium ultimum, the highly resistant PI 165435 was crossed to the susceptible snapbean variety 'Maestro'. Reciprocal crosses were made. The resulting F<sub>1</sub> plants were all cripples. The seedlings emerged