

**PROGRESS REPORT TO THE
OREGON PROCESSED VEGETABLE COMMISSION**

1. **Title:** Dependable Stand Establishment for Super Sweet Corn
2. **Project Leaders:** Clinton C. Shock and Charles Burnett

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3. **Project Status:** Continuing project 304 of Oregon State University, Agricultural Experiment Station
4. **Funding for 1989:** \$4,500 from the Oregon Processed Vegetable Commission, initiated in 1987

5. **Objectives:**

Evaluate the effects upon seedling emergence and die back of:

- A. combinations of fungicides and reputed plant growth regulating agents.
 - B. interactions of seed sizes and seed densities.
 - C. seed coatings and enhancements.
 - D. early season nitrogen applications.
6. **Progress:**
- A. **Effects of fungicides and insecticides:** This trial was coordinated with personnel from the Southwest Idaho Research and Extension Center for a multi-location test. Thirty eight fungicide combinations were tested along with an untreated check. Individual fungicides included Captan, Thiram, Benlate, Imazalil, Apron (Metalaxyl), Nusan (TCMTB), PCNB, Epic (Iprodione), Mertect (Thiabendazol), and Vitavax. Magnum and Loresban insecticides were also added to some mixtures.

All fungicides and insecticides were added to the same lot of Abbot and Cobb Summer Sweet Brand 8701 W seed by the Gustafon Seed Technology Laboratory. Seed was planted on May 2 at the Malheur Experiment Station. Live and dead counts were made six times over a four week period between May 15 and June 2. The effects of individual chemicals and chemical mixtures were interpreted.

Plant establishment ranged from 59 to 83 percent, a fairly broad range for a seed lot with a low index of seed borne disease. Fungicide mixtures produced very highly significant improvements in plant stand compared to the check. By component analysis, only Thiram, Benlate, and Apron and their combinations produced emergence and stand improvements at Ontario in 1989. Neither the fungicides Captan, Metalaxyl, Vitavax, Nusam, PCNB, Epic and Mertect nor the insecticides Magnum and Loresban had any significant effect. Imazalil decreased plant emergence and final plant stands.

The best fungicide mixtures included Thiram, Benlate and Apron. The activity of these three fungicides was additive, except that the action of Thiram plus Apron added little to the individual effects.

- B. Effects of seed size and seed density interactions: Seed sizes and densities were sorted by industry. The resulting variation in size and weight was judged to be too small to justify field trials in 1989. No progress was made on this objective.
- C. Effects of seed coatings and enhancements: Three seed companies prepared a total of eight different seed coats using the same lot of super sweet corn seed, Abbot and Cobb Summer Sweet Brand 8701 W. Seed had been previously treated with Captan + Thiram + Benlate.
- Seed were planted and counted on the same dates and in the same ways as the fungicide trial above. Final stand establishment ranged from 78 to 84 percent, without significant seed coat treatment effects.
- D. Effects of early season nitrogen: Extra nitrogen was sidedressed or waterrun at 35 lbs N/acre in the form of ammonium nitrate. Sidedressed nitrogen improved final plant stands from 80 to 84 percent, but the difference was not statistically significant at the 95 percent confidence level.

7. Summary:

- A. Effective fungicide treatments were Thiram, Benlate and Apron alone or in combination. Effective rates of seed treatment in 1989 were:
- | | |
|---------------|--------------------|
| Thiram | 4 fl oz per cwt |
| Benlate 50 WP | 4 oz per cwt |
| Apron FL (N) | 0.75 fl oz per cwt |

Although Captan has been used extensively as a corn seed treatment, it had no beneficial effect when added to or omitted from a mixture of these other fungicides.

Imazalil has been touted as an effective seed treatment for improving emergence and reducing seedling blight of super sweet corn. Imazalil at 0.5

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fl oz per cwt had no significant effect and Imazalil at 1.0 fl oz per cwt reduced both seed emergence and final plant stands.

- B. Seed coats can be of practical benefit in planting uniform stands of super sweet corn given the irregular shapes of the shrunken seed. Seed coats from three companies did not interfere with seed emergence or stand establishment. The seed coats appear to be practical alternatives to planting raw seed.
- C. Extra sidedressed nitrogen (35 lbs/acre) may have helped super sweet corn seedling emergence and survival in 1989, but the stand improvement did not reach the 95% confidence level. Unless negative effects are proven, it appears wise to sidedress part of the super sweet corn seed nitrogen requirement at planting.