ORNAMENTALS NORTHWEST ARCHIVES

July-Aug. 1987
Vol.11, Issue 1
Pages 18-19

James L. Green
Horticulture Department
OSU
Corvallis, OR 97331

GLADIOLUS - POSTHARVEST HANDLING OF GLADIOLUS CORMS

It is common practice to hose off muddy corms after lifting. Wet corms, especially those submerged in a wash water, should be dipped in a Benlate/Captan suspension and then dried or the freshly-lifted corms may be treated with a fungicide - hot water treatment. Corms are "cured" and then placed in cool storage.

Hot water, fungicide treatments:

Benlate/Captan hot water treatment controls fungi (Stromatinia, Curvularia, Botrytis, Fusarium corm rot), thrips, nematodes, bulb mites and aster yellows mycoplasm. Fungicide rates, water temperatures, details regarding Ethrel or ethephon additions and treatment duration are outlined in the report (1).

Spray vs dip application of fungicide:

Spraying corms instead of dipping? In experiments comparing corm dips and spraying, sprays were inferior in controlling Fusarium disease. The problem, even with systemic fungicides, seems to be lack of penetration under husks with ordinary spray pressures. Increasing the fungicide rate (3-4 times the dosage used in dipping) and adding penetrating agents and soluble oil did not give adequate control (1).

CURING Freshly Harvested Gladiolus Corms(2):

"Curing" is the process of healing of bruised surfaces, and the growth of a thick "skin", a process called suberization. Suberized (corky) layers form around and compartmentalize corm infections and cuts. With Fusarium-susceptible cultivars, curing at 90°F for one week prior to placing in cool storage resulted in more healthy corms and flowers. With cultivars tolerant of Fusarium, cured corms when planted after cool storage sprouted earlier and more uniformly than did uncured corms.

"Curing" takes about a week at 90°F; about two weeks at 75º F; and, much longer in cool storage. Curing is more rapid and complete when the relative humidity is held between 75 and 85% with very little air movement around the corms. Corms protected by double paper bags from excess air-drying while being cured six days at 95°F were compared with exposed corms in field trials after cool storage. **With protected corms, flower production was increased 49%,**

and the corm production was increased 80% compared to that of unprotected corms cured six days at 95°F.

Under drying conditions (high temperatures, rapid air movement, low relative humidity), excessive loss of corm weight causes reductions in corm and flower quantity and quality**. The less shrinkage in corm weight during curing, the greater the flower and corm production.**

Storage of gladiolus corms (3):

Corms were cleaned immediately after digging, dipped in Mertect 160 (a systemic fungicide) for disease control, placed in cloth bags, and stored at 45°F in air or controlled atmosphere (CA) treatments. The CA's were: 1) 20% oxygen + 1% carbon dioxide + 79% nitrogen; 2) 20% oxygen + 3% carbon dioxide + 77% nitrogen; 3) 2% oxygen + 3% carbon dioxide + 95% nitrogen. After 12 weeks storage, corms were planted. **Corms stored in air or 20% oxygen + 1% carbon dioxide (CA trtmt 1) emerged earlier and were taller** than those from other CA treatments. Corms stored in air produced shoots that flowered earlier and yielded more flowers than corms in any CA treatment. Mother corms stored in air produced more daughter corms than did those from CA storage. **Storage areas should be aerated to prevent build-up of carbon dioxide levels.**

Dormancy of corms and cormels (1):

Corms matured in cool soils, as in autumn, have a shallow dormancy; while those harvested in warm soils have a deep dormancy. The safest way to break dormancy is cool storage.

Corms and cormels are stored at temperatures above 38°F but below 50°F: A uniform temperature of 40-42°F is desirable. Corms are stored until a few days prior to planting. If the hard root "buds" have not developed in cool storage, corms are transferred to a warm room (75-85°F) until root buds have developed.

Experiments showed that corms stored upright during the 3 months-storage period sprouted sooner and produced significantly more flowers than did corms stored upside down.

Rhizoctonia -gladiolus root and neck rot in field plantings (1):

Rhizoctonia solani Kuehn. soil fungus causes root rot, brown corm spots and neck rot. The fungus seems to require partially decayed organic matter from which to successfully attack gladiolus, - for example crop residues not thoroughly rotted due to heavy rainfall or planting glads too soon. Most often, gladiolus Rhizoc damage has occurred in fields where beans were grown and recently harvested and the crop residue was not allowed to decay before planting. "If it is necessary to plant too soon, especially after beans, mix Terraclor (pcnb) into soil, as by discing, at 60-90 pounds a.i. per acre. Also effective was spraying the <u>open</u> furrow after planting corms or cormels with Demosan and Botran: Ten pounds Demosan 65W and 15 pounds Botran 75W sprayed per acre of row 36 inches apart."

Literature cited

1. Magie, R.O. 1987. Gladio Grams volume 65, February 1987. Gulf Coast Research and Education Center, IFAS, University of Florida, 5007-60th Street East, Bradenton, FL 34302.

2. Magie, R.O. 1987. Gladio Grams volume 66, April 1987. Gulf Coast Research and Education Center, IFAS, University of Florida, 5007-60th Street East, Bradenton, FL 34302.

3. Marousky, F. S. (USDA-ARS, IFAS, University of Florida, Fifield Hall, Gainesville, FL 33261), R. H. Cubbedge, and R. O. Magie. Controlled atmospheres during storage of gladiolus corms. Florists' Review 172(4458):38-40, May 12, 1983.
