

Waxy Leaves Are Healthy Leaves

Homemakers may not like it on their floors, but waxy buildup could be healthy for plants and animals.

Research has shown that natural wax on the surface of plant leaves slows the loss of moisture from a plant. More recently, scientists have learned this waxy coating acts as a barrier to insect attacks. Agricultural Research Service scientists in Logan, UT, and Manhattan, KS, are breeding new waxy-leaf alfalfas to take advantage of these characteristics.

In addition, "wax may reduce the risk of bloat in cattle that graze on highly nutritious alfalfa plants," says plant geneticist Melvin D. Rumbaugh at Logan.

Bloat is a frequently fatal accumulation of gas bubbles in an animal's stomach. Cattle are the most likely to bloat, but sheep and other ruminants can be affected. Research with plants other than

alfalfa indicates that wax on plants helps break down the foam, allowing the gas to escape, and that the more wax, the less bloat.

Rumbaugh estimates losses due to bloat reach \$300 million a year. "It's even more," he says, "when you account for milk and weight loss that result when farmers try to reduce bloat by feeding their livestock less alfalfa."

Rumbaugh and colleagues at Logan found that the natural wax on 28 common types of alfalfa varies considerably — from 138 to 460 milligrams per square meter of leaf surface.

Rumbaugh has developed both high-wax and low-wax alfalfas by crossing these U.S. varieties. They will be compared during the 1986 growing season for their ability to withstand drought and insect attacks.

Agronomist Edgar L. Sorensen, in cooperation with the Kansas

Agricultural Experiment Station at Manhattan, is taking a different route for waxy leaves. He crossed a wild, low-growing waxy species from northern Italy with a widely used U.S. species. The Italian alfalfa, *Medicago prostrata*, typically grows only inches long and flourishes in arid areas.

Wax production of this hybrid varies with the amount of water available to the plant. On plants grown on dryland, wax production increased and many strumae — balls of wax — developed on the leaf surface. None developed on irrigated plants.

Says Sorensen, "These drought-resistant characteristics can be bred into commercial alfalfa varieties, making it possible to grow alfalfa in dry areas where presently available varieties cannot survive." - By Linda Cooke-Stinson and Howard Sherman, ARS.

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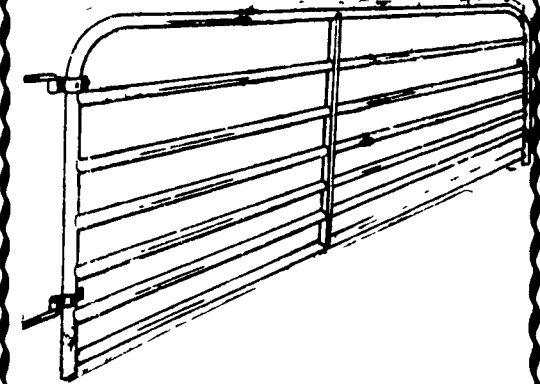


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