Alfalfa Stand Decline

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The disease known as alfalfa bacterial wilt is caused by a soil-inhabiting bacterium, Corynebacterium insidiosum, which occurs sporadically in various regions of the State. Wilt is found chiefly along the Colorado River and at higher elevations in Northern Arizona.

Symptoms of bacterial wilt
As the name implies, wilting of infected plants is the most common late symptom of this disease. Earlier symptoms are: stunting, yellowing of the shoots and leaves, and leaves cupping upwards. Root symptoms include the appearance of brown, dot-like spots (when viewed in cross-section) in the wood (See illustration). In longitudinal root sections these areas appear as streaks. The brown-colored areas represent gum-plugged, water-conducting vessels (See illustration). Plugged vessels impair the normal functions of the plant, resulting in wilting, then death.

How is wilt spread?
Irrigation water and implements used in cultural practices are capable of spreading wilt in a planting.

Can wilt be controlled?
Caliverde, Ranger, and Buffalo alfalfas are resistant to bacterial wilt. Buffalo and Ranger are adaptable to higher elevations. In the central and southern counties wilt is not a major problem, and crop rotation with non-susceptible crops is the practical way to control it. Resistant varieties, Ranger and Buffalo, are not very well suited for hay production in these counties.

Alfalfa dwarf
Both wilt and dwarf may appear in the same planting. Dwarf is caused by a virus. The virus is the same one causing Pierce’s Disease of grapes. Some weeds, including Bermuda Grass and Johnson Grass, carry Dwarf virus without showing external signs of disease.

Alfalfa dwarf has been detected in African and Chilean alfalfas by approach root grafts in experiments at this station. Plants seemingly infected with wilt in addition to dwarf were used as sources for these experiments. The source plants were collected from commercial fields in Yuma and Maricopa counties. It is possible that dwarf may be more widespread than any of the alfalfa diseases, with the exception of crown rots, in Arizona.

Symptoms of dwarf
Investigations show that it is impractical in the field to attempt to distinguish dwarf symptoms from those caused by the wilt bacterium, in Central and Southern Arizona. Yellow, stunted plants having roots with plugged water-conducting vessels are characteristic of dwarf. These symptoms are also found in wilt.

OTHER DISEASE
Witches’ broom is caused by another leafhopper-transmitted virus. The stems of infected plants are more numerous and longer than normal. The disease has been observed in the Yuma and Coolidge areas.

* A previous article by Dr. Keener on alfalfa stand decline was in PROGRESSIVE AGRICULTURE, October-December, 1955.

JUNE IN
Cochise County
Wed., 6:30 a.m.—KAWT
Coconino County
Tues. and Thurs., 8:10 a.m.—KCLS
Graham County
Sat., 10:00 a.m.—KGLU
Greenlee County
Sat., 12:15 p.m.—KCLF
Maricopa County
Sun., 8:45 a.m.—KYO
Yuma County
Mon. through Fri., 7:20 a.m.—KYUM

ARIZONA FARM & RANCH HOUR
Every Saturday at 12:30 Noon
On Following Stations:
KOY—Phoenix
KYMA—Yuma
KVML—Winslow
KCLS—Flagstaff
KAWT—Douglas
KSVN—Bisbee
KTUC—Tucson

April, May, June