IDENTIFICATION AND CONTROL OF BEAN DISEASES

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The only dependable control for bean diseases is prevention, and each disease may be prevented by different means. It is important, therefore, to understand each disease problem and the conditions and practices which affect it.

Much has been learned about prevention of bean diseases during many years of farming and Research by many people throughout the world. During the past 15 years, a good deal has been learned about the disease problems affecting beans in the Columbia Basin.

This knowledge provides a basis for successful bean growing in most seasons. It also provides a basis for the work of research workers who are making progress each year toward a more full understanding of the diseases and development of new disease-resistant varieties and of control measures.

Our most serious diseases in field beans are caused by viruses spread by insects and by fungi which live in the soil.

Bean mosaic viruses are carried by aphids. Common mosaic, the most serious, is also carried in bean seeds from previously infected plants. Three controls are available: (1) early planting (May 1 to 15), to avoid aphid feeding on young plants, (2) use of certified, disease free seed, and (3) use of resistant varieties.*

Yellow mosaic viruses are spread by aphids from clover fields. The control for this disease naturally, is to avoid planting beans near clover fields. Again, early planting to avoid large aphid populations on young plants will reduce loss from these viruses.

Root rot is caused by several pathogens but the most important is the fungus, Fusarium. After 2 crops of beans, our soils are usually heavily infested by this fungus. The best control now available is to grow beans in such fields only after rotations including 3 years of alfalfa between bean crops. We have some evidence that Black Turtle Soup, Red Mexican #34, and Pinto #111 are more tolerant of root rot than other varieties. Root rot is reduced where soil fertility and other conditions favor rapid plant growth. Too much or too little water, both, favor root rot. Good land leveling is important, to insure even distribution of water.

Sclerotinia, also, is best controlled by rotations with alfalfa. However, this disease may be held in check by withholding irrigations, when symptoms begin to appear. If water is withheld until the soil surface dries, the

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* For a more thorough coverage of information and recommendations, see Extension Bulletin 497, "Growing Field Beans in the Columbia Basin."

fungus is inactivated. If it seems desirable, another irrigation may then be applied.

Two new, early-maturing, short-vined, mosaic-resistant, Red-Mexican bean varieties were released by the University of Idaho last month. However, seed will not be available to Washington farmers before 1965.