

# CONSERVATION AGRONOMY TECHNICAL NOTES



U. S. DEPARTMENT OF AGRICULTURE

NEW MEXICO

SOIL CONSERVATION SERVICE

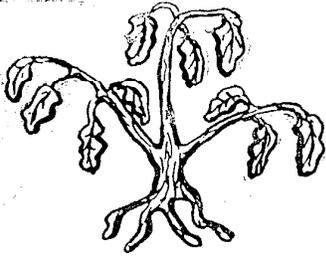
## NOTE NO. 12

RE: STEPS IN PREVENTION AND CONTROL OF ALFALFA DISEASES

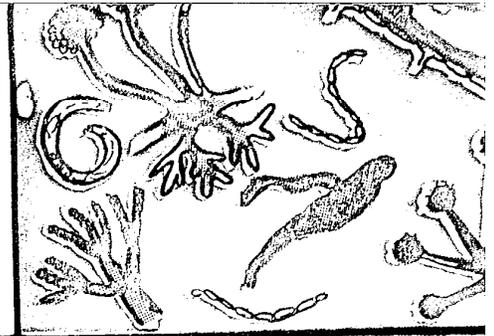
Attached for your information is Plant Diseases in New Mexico,  
Vol. IV No. 4, issued by Cooperative Extension Service, New Mexico  
State University.

Attachment

AC's and DC's  
SRC ✓  
Regional Agronomist, Portland  
Kenneth L Williams  
NMSO Records Mgt.



# Plant Diseases in New Mexico



COOPERATIVE EXTENSION SERVICE

NEW MEXICO STATE UNIVERSITY

U. S. DEPARTMENT OF AGRICULTURE

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## STEPS IN PREVENTION AND CONTROL OF ALFALFA DISEASES

1. Prepare land before planting so the field has a uniform slope without low spots. A firm seedbed free of clods is necessary to get a good stand.
2. Plant resistant varieties - Selecting the right variety is probably the most important decision to make in producing alfalfa. Resistant varieties offer the greatest protection from diseases, insects and nematodes. Mesilla and Zia are good yielding varieties resistant to root and crown rot complex (bacterial and fusarium wilt). They are also resistant to the spotted alfalfa aphid, and Mesilla is resistant to the green pea aphid. New Mexico 11-1 and Ranger are acceptable varieties with moderate resistance to the root rot organisms. Lahontan is recommended if the alfalfa stem nematode is a problem. It also has resistance to the spotted alfalfa aphid.
3. Plant certified seed to insure getting pure seed of the desired variety.
4. Treat seed with a fungicide such as thiram, captan, or chloranil to help prevent seed rots. Seed treatment often makes the difference between getting a good thick stand or a poor stand.
5. Inoculate seed with nodule forming bacteria to increase yield and vigor of alfalfa, especially if planted on new land or land that has not had alfalfa on it for several years.
6. Plant in the fall to get the crop off to a better start. Fall planting is preferred because the seedlings usually have fewer weeds to compete with and most weeds die with the first frost.
7. Use the correct amount of fertilizer to obtain a healthy, vigorous, high yielding crop. Twenty pounds of nitrogen at planting time helps the seedlings get established while nodules are developing on their roots. Alfalfa is a high user of phosphorus and responds well to this element in most areas of the state. Apply 90 to 120 pounds of  $P_2O_5$  depending upon a soil test and particular area.
8. Irrigate properly. Alfalfa requires a lot of water to yield well. Alfalfa yields are higher and it is less susceptible to root and crown rot diseases if light, frequent irrigations are used. Good drainage of at least three feet is needed.
9. Cut during early bloom to obtain high quality hay. Early cutting helps prevent leaf diseases since tall, rank growth favors disease development.
10. Plow out thin stands of alfalfa as they are unprofitable. Alfalfa fields should be rotated to small grains, sorghum, or some other crops for at least two years before seeding back to alfalfa.

## COMMON ALFALFA DISEASES

1. Root and Crown Rot Complex - This is our most troublesome alfalfa disease specially in southern New Mexico. Stand decline is the most noticeable symptom. Decline usually begins during the second year after planting and gradually becomes more severe. Early symptoms include yellowing and wilting of stem tips or entire shoots which eventually die. Plants are normally stunted and have an increased number of small, shortened stems and small leaves. Roots may be rotten or simply have a few discolored lesions. Reddish-brown streaks are usually evident when the outer bark is removed. In some cases, rotting may occur only at the crown area of the plant. Several organisms can cause this diseased condition. They include Fusarium sp. (cause of fusarium wilt), Corynebacterium insidiosum (cause of bacterial wilt), Rhizoctonia solani, and others. A laboratory examination is usually needed to determine what specific organism is involved. Control is difficult. Use of resistant varieties such as Mesilla and Zia offer the best method of control. Do not allow water to stand in a field for extended periods.

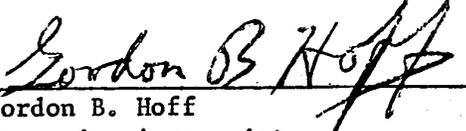
2. Seed Rot and Seedling Disease - Several soil fungi may attack alfalfa seed as it germinates or may attack the young seedling after it has emerged from the ground. If the seedlings have emerged, the disease is characterized by a soft, water-soaked area on the stem just below the soil line. Severe stand reduction can occur. This problem is most common when the soil is excessively wet. Chemical seed treatment may help reduce stand losses; recommended fungicides include thiram, captan, and chloranil.

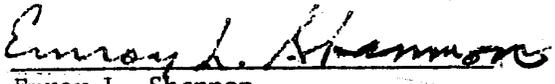
3. Alfalfa Stem Nematode - The stem nematode has caused reduced yield in a few fields in New Mexico. Symptoms include shortened stems which become thickened and club-like. Crown buds infested with nematodes become swollen and distorted and will break off easily. The stem nematode is active only under cool, moist conditions. Plants grow normally during warm weather. Nematodes are introduced into fields by planting poor quality, nematode infested seed; and by allowing tail water from infested fields to drain into other fields. Lahontan variety is resistant and is recommended in fields that have previously been infested with stem nematodes. A rotation with sorghum or small grains is also beneficial.

4. Downy Mildew - This fungus disease is often seen in the spring when cool, moist weather exists. It rarely causes serious reductions in yield. The fungus causes new growth to turn yellow and new leaves are usually twisted. A white, moldy growth is usually present on the underside of diseased leaves. Where severe, cut early to save as many leaves as possible.

5. Leaf Spots - Several species of fungi often cause leaf and stem spots on alfalfa but are not considered to be serious problems. Small, brown-to-black, circular spots on the lower leaves is the most noticeable symptom. Some of the lower leaves may turn yellow and drop. The disease can develop rapidly when moist conditions exist. Progress of the disease is stopped when the crop is cut.

6. Mosaic - Alfalfa mosaic is a widespread virus disease carried by insects but has never reached epidemic proportions. Light and dark streaks and blotches in the leaves are the main symptoms. Some stunting may occur. No special control is practiced in alfalfa.

  
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