

Summary

Data here presented tend to support previous observations that changing the spacing of drilled rows of grain from six to seven inches may be done without altering the yields of grain and straw.

Number and weight of weeds as recorded under conditions of this trial apparently were not altered by the difference in spacing.

Ability of the stubble to hold up the combine swath was reduced and the swath settled through the stubble somewhat faster in the wider spacing under the one year's conditions encountered in 1949.

THE USE OF ANTIBIOTICS IN FOOD PRESERVATION¹

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A study of the use of very small amounts of antibiotics in sterilizing food in cans is in progress at the Western Regional Laboratory of the U.S.D.A. Several years' research will be needed before the suitability of the method for commercial canning can be ascertained. Successful preliminary results have been reported for peas, asparagus, corn, green beans, peeled potatoes, tomato juice and milk. Taste is not affected, while the mild heat treatment required yields products with a better flavor than is found in conventionally canned vegetables.

The chief antibiotic used to date is subtilin, which was produced by the Western Laboratory from one strain of a bacterium, *Bacillus subtilis*. This organism occurs widely in nature and in many food products. Other antibiotics which showed promising results were aureomycin, chloromycetin, and lupulon. The latter was recently obtained from hops.

When these antibiotics are employed, only brief heating at 212° F. or lower for five to ten minutes is required in vegetable canning to inactivate enzymes that ordinarily cause food spoilage. Yeasts, fungi, and non-spore forming bacteria are also destroyed. The spore-forming type of food-spoilage organisms are resistant to mild heat but may be controlled with antibiotics with a milder form of heat treatment (240° F. or higher in pressure cookers) than is now necessary.

Further information is required on such points as whether antibiotics only inhibit or actually destroy the harmful organisms, on the length of preservation period, and if possibly a breakdown of the antibiotics themselves may occur with time to form poisonous substances or to allow toxic organisms to arise.

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²Cercal Technologist.

BARLEY-OAT YIELD COMPARISONS

The 10 year average yield of barley harvested in North Dakota, 1938 to 1947 inclusive, was 21 bushels per acre; in 1948, 21 bushels per acre and in 1949, 16 bushels per acre.

The 10 year average yield of oats in North Dakota, 1938 to 1947 inclusive, was 28.6 bushels per acre; in 1948, 28 bushels per acre and in 1949, 21.5 bushels per acre.

Comparisons of barley and oats yields on a bushel basis are misleading—expressing the 10 year average yields as pounds per acre the 10 year average yield of barley was 1,008 pounds and the 10 year average yield of oats was only 915 pounds.

In 1949 when both barley and oats yields were low, barley averaged 768 pounds per acre and oats 708 pounds per acre of grain. Yield data from U.S.D.A. (H.L.W.)