EFFECT OF A RYE CROP ON THE GROWTH OF GRAPES

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The influence of one crop on another when the two are grown in combination is a subject that has received rather less attention than have some other phases of agricultural research. As is well known, in some cases the growing of two crops together results in an actual stimulation of one or both, while in other cases the association is clearly a harmful one. Apparently the amount of injury that may result from the harmful influence of crops growing together has been too lightly considered, and only in cases where one or the other of the crop plants have shown physiological disorders does there seem to be the proper appreciation of possible serious effects. This applies especially to the growing of young apple trees under sod. Growth of such trees is usually very slow, and this lack of vigor is often reflected by a yellowing of the leaves or by early seasonal maturity. Woodbury, Noyes, and Oskamp (6) have concluded that moisture conditions under sod are not likely to be optimum for growth. The work reported here was arranged in an attempt to make a possible answer to the question of why the harmful influence exists.

REVIEW OF LITERATURE

Bedford and Pickering (1) decided that the deleterious effect of a grass crop on apple trees was due to a chemical substance which was rather easily oxidized to a non-toxic condition on short exposure to air. Lack of oxygen was not considered as an explanation, however. Their work was primarily with apple trees, but subsequently several other crops were studied. Trees that show weak growth under sod are invigorated by an application of nitrate, as shown by Lyon, et al. (4). Thatcher (5) has recently reviewed the literature on the subject, and he concluded that no sufficient explanation for the harmful effect of some crops when grown in association with other crops has been offered. It does not seem necessary to give a more lengthy review here because of Thatcher's recent article and conclusions.

NATURE OF THE PRESENT INVESTIGATION

It was thought that by using a sufficiently fertile soil and by supplying water in proper amounts that the nitrates as well as the moisture