EFFECT OF SOAKING SEED OF SOME VEGETABLES BEFORE SOWING

JAMES E.KNOTT

In view of the frequent recommendation that seed of vegetable and crop plants be soaked before sowing and the fact that this practice is extensively followed to avoid competition in the case of seed which is slow to germinate, further knowledge of the possibility of influencing the development of the plant by such treatment would seem desirable. To this end a series of experiments using some of the common garden vegetables was carried out in the greenhouses during the winter of 1923–24.

DISCUSSION OF PREVIOUS WORK

In their review of the literature of various seed treatments, Kidd and West (4) showed that the results of previous workers, Kraus (5), Wollny (6), Eberhart (3), indicated that plants from soaked seed were larger, flowered first, had larger growth and flowering periods and gave larger total yields than plants from dry seed. Lupins, peas, beans, oats, rye, vetch, and corn were used by these earlier experimenters. Kidd and West (4) presented data covering work with dwarf beans, lupins, wheat, broad beans, mustard, and oats, in which soaking increased growth in all cases except with dwarf bean. They concluded that, apart from its effect on germination (which has been rather extensively studied) soaking seed had a strong specific effect varying with different crops, and that, since germination was the critical stage in the life time of the plant, factors operating then might result in even better than a natural optimum yield. They soaked the beans under four centimeters depth of water which might explain why they obtained different results with this crop than did Kraus (5) and Wollny (6).

Soaking seed is supposed to start the life processes which are accompanied by a loss of food reserves, the use of oxygen and the release of carbon dioxide. Some of the factors which affect this beginning of growth are, the length of soaking, the temperature of the water, the relative amount of water, the movement of the water, the amount of surface of the water exposed to air, the size of the seed, and the density of the seed mass.

Evidence offered by previous workers shows that although one

1 Contribution from the Laboratory of Plant Physiology, Cornell University Ithaca, N. Y. Received for publication November 7, 1924.
2 Instructor in Plant Physiology.
3 Reference by number is to "Literature Cited," p. 54.