SPRING TILLERING OF FALL-SOWN OATS

C. K. McCLELLAND

It often happens that fall-sown oats throughout the southern states are more or less severely injured by the freezing incident to the cold waves which sweep at times over the entire cotton belt region. This winter injury varies from 0 to 100% dependent on various factors, such as the date of planting, the fertility of the soil, the variety, the fall conditions, the growth activities of the plants, the severity of the cold waves, the cell sap concentration, the nature of any protection afforded, and who knows what else? To what extent do the oats make up in the spring for any depletion of stand resulting from winter injury? While there has been a general opinion that oats would tiller out in the spring, references on the subject are lacking. The present report is of investigations undertaken to secure more specific information on the subject.

Three main experiments were conducted, including plants transplanted to pots in the greenhouse, plants transplanted to the open field, and plants undisturbed in the field. Other considerations were (1) thickness of stand as represented by one, three, and five plants per pot and by various spacings in the field transplants; (2) the number of old tillers already on the plants, those containing from one to six tillers being taken both for the undisturbed and transplanted plants, though three-tillered plants only were used for pot, spacing, and fertilizer tests; (3) the influence, if any, of particular and combined fertilizing elements (not reported in this paper); and (4) the number of heads at harvest time and the percentage of heads from new or spring tillers.

POT EXPERIMENTS

Sixteen pots with different combinations of fertilizers were planted with one plant per pot, 16 with two plants per pot, and 16 with three plants per pot. Though three-tillered plants were used, later counts showed that often one or more of the tillers perished. In two pots transplantation did not succeed, while in several others one or more plants died. Table 1 gives the detailed counts on these transplanted plants. Table 2 summarizes the results, giving the original grouping and also the final groups with the two-plant and four-plant pots included.

---

1 Contribution from the Department of Agronomy, Arkansas Agricultural Experiment Station, Fayetteville, Ark. Submitted with the approval of the Dean of Agriculture as Research Paper No. 227, Journal Series, University of Arkansas. Received for publication November 28, 1930.

2 Assistant Agronomist.