EFFECT OF REDUCED OXYGEN PRESSURE ON RICE GERMINATION

JENKIN W. JONES

The control of barnyard grass (Echinochloa crusgalli) in the rice fields of California is based upon continuous submergence of the land, and since this reduces the oxygen pressure for seed germination, the two factors, continuous submergence and reduced oxygen pressure, are directly associated in the control of weeds. Seeds of barnyard grass germinate under water; however, the seedlings grow more slowly under water than do rice seedlings and in this way the weeds are controlled.

A large acreage of the rice land in California is so foul with barnyard grass and varieties that special irrigation methods have been developed to control these weeds.

It is practically impossible to grow satisfactory rice crops on foul land by the method of irrigation formerly used, which consisted of flooding and draining the land after seeding and at intervals of about 10 days until 30 days after the rice had emerged. The land was then submerged about 6 inches deep and the water was held at this depth until the fields were drained preceding the harvest. This method of irrigation provided almost ideal conditions for the growth and reproduction of barnyard grasses.

The method of irrigation now used on foul land is as follows: A fairly good seedbed is prepared and submerged shallow. The rice is then sown broadcast in the water. An alternative method is to sow broadcast on the surface of the dry soil, which is then submerged. The land is continuously submerged after seeding to an average

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2 Senior Agronomist, Division of Cereal Crops and Diseases, Bureau of Plant Industry, U. S. Dept. of Agriculture, formerly Superintendent of the Biggs (Calif.) Rice Field Station.