yields, although rather late in maturing. The yields frequently exceed 150 bushels per acre of good quality grain. Very late winter varieties such as Winter Turf and Pioneer may not mature fully, but still produce a fair yield.

However during the same period Algerian oats have shown poor performance when sown in the spring at the Aberdeen Substation. They are extremely late, produce comparatively few heads and poor grain. The straw is decidedly weak, usually resulting in early and severe lodging.

In 1956 Dubois and Algerian oats were sowed in the same area at Aberdeen at approximately the same time. These two were the only winter oats that reacted in the manner described for Algerian. Other varieties developed normally and made creditable yields of good quality grain.

Apparently Dubois carries a recombination of genes derived from the Algerian ancestors of both of its parents and thus reacts like Algerian when spring sown. Unfortun-ately this character is also transmitted to many segregates of Dubois crosses.

It is inadvisable to sow Dubois oats in the spring, although it is a most promising, hardy, productive, high quality, stiff-strawed winter oat when fall sown.—FRANKLIN A. COFFMAN, Agronomist, Crops Research Division, A.R.S., U.S.D.A. Received February 1, 1957.

SCISSOR EMASCULATION OF OATS

RECENTLY Wells and Caffey3 emasculated wheat and barley by clipping florets with scissors just below the anther tips prior to normal dehiscence. In view of their results, oat breeders might be interested in limited experiments conducted at Madison, Wisconsin in 1951 where a similar method of emasculation was used.

Brown and Shands4 and Brown5 showed that one-third of the upper portion of oat spikelets could be clipped without causing serious reduction in seed set of oats except during very hot periods. On July 13, 1951, 48 spikelets of the variety Rodney were prepared by clipping the upper third, and removing the secondary florets and anthers of the primary floret. Pollination 3 days later resulted in 10.5% seed, which is less than the conventional method. Less time was required for pollination but the newer method probably caused more injury.

In a later experiment in 1951, three-fourths of the upper portion of each of 30 spikelets of the variety Rodney was clipped so that the secondary floret was removed with a portion of the anthers of the primary floret before pollen was functional. Pollen dusted on the stigmas of the clipped florets four days later gave 13.3% seed set. No seed was set in 30 closely-clipped, non-pollinated florets indicating effective emasculation.

These results indicated that close-clipping of spikelets before the anthers of the primary floret reached maturity had possibilities as a method of emasculation, but the results of the following years were less promising. In fact, the work was discontinued because of the significant number of self-pollinations obtained in 1952. However, in view of the results obtained with barley and wheat by Wells and Caffey,6 this method should be given further consideration for oat breeding. Close-clipping would speed up the emasculation and pollination procedures. Possibly self-pollination could be avoided by earlier clipping.

It should be emphasized that low percentage seed set is the major cause of poor efficiency in oat crossing. Consequently, the oat breeder would not find the close-clipping method practical if set percentage must be sacrificed.—CHARLES M. BROWN, formerly graduate assistant in Agronomy, University of Wisconsin, now Assistant Professor of Agronomy, University of Illinois.

WEEDS CONTAINING NITRATES CAUSE ABORTION IN CATTLE

Many Wisconsin farmers have sustained serious economic losses from abortion when cattle grazed unimproved, lowland pastures. Abortions in both beef and dairy cattle have occurred annually on such areas during the past 50 years. Over 400 abortions were reported to the Agricultural Agent of Portage County during 1954 and abortions from unknown causes have been reported from 42 Wisconsin counties during the past 3 years. One-hundred and five such abortions were reported from 21 farms in 10 counties during 1956. The number of abortions per herd have ranged from one to all of the pregnant animals. Many abortions undoubtedly were assumed to be caused by brucellosis and were not reported. Since the state was declared modified brucellosis-free, a large number of abortions have been reported in brucellosis-free herds. No abortions of this type have occurred in cattle grazed on similar lowland areas that have been improved by fertilizing, cropping and reseeding.

It has been established by the Wisconsin Animal Disease Diagnostic Laboratory and by qualified local veterinarians that these abortions were not caused by any of the known reproductive diseases such as brucellosis, leptospirosis, vibriosis, etc.

Numerous theories for the cause of these abortions have been proposed by farmers, agronomists and veterinarians. Included are poisonous weeds, fungi on dead grass, stagnant water, mineral deficiencies and mineral toxicities.

Inspection of a large number of pastures during 1954 revealed that weeds might be responsible. A botanical survey was conducted on several farms during July of 1955 in search of poisonous plants. As many as 90 species of weeds, weedy grasses and woody perennials were present in some pastures. No one poisonous plant was generally present on all pastures where abortions occurred.

A grazing study was conducted during 1956 on an unimproved lowland pasture having a known history of abortions and containing a large number of weeds. Two grazing areas were established in this pasture. They were treated as follows: area A—fertilized with 500 pounds of 10–10–10 per acre, sprayed with 2,4-D and sprayed a second time with a mixture of 2,4-D and 2,4,5-T; area B—received no treatment. Each of these was stocked with 8 pregnant heifers on May 22. Another weedy pasture was stocked with 4 pregnant heifers in July. Thus, 12 heifers were grazing on 2 weedy, untreated areas, and 8 heifers were grazing on the treated area.

Ten of the 12 heifers on the untreated areas aborted while only one of the 8 heifers on the treated area aborted.

1 Contribution from the Department of Agronomy, University of Wisconsin, Madison, Wis. Received February 14, 1957.