ORIGIN OF CULTIVATED OATS

FRANKLIN A. COFFMAN

FOR NEARLY 100 years the opinion has been held that the progenitor of cultivated oat varieties, belonging to the species *Avena sativa* L., is *Avena fatua* L., the common wild oat of the fields and fence rows. Although this has seemed reasonable on the basis of morphological characters that have been used almost exclusively in classification of oats, data from other fields of plant research, *viz*., genetics, plant pathology, and physiology, appear to provide ample reason for doubting the origin above indicated. It is the purpose of this paper to indicate the possibility of a different origin for cultivated oats, namely, that they may be derivatives of *A. sterilis* L. rather than *A. fatua*, and to consider the evidence relating thereto.

Any suggestion as to the origin that differs from accepted belief should be supported by ample evidence. Accordingly, experiments have been conducted, green and mature plant materials have been examined, and pertinent literature has been searched in an effort to assemble evidence bearing on this question.

REVIEW OF GENERAL LITERATURE

Linnaeus (43) in 1753, described *Avena fatua*, *A. sterilis*, *A. sativa*, and *A. nuda*. Later, Koch (40, p. 392) in 1848 described cultivated oat forms that he considered derivatives of *A. sterilis* and named these *A. byzantina*. Cosson (17), in 1854, made what seems to be the first oat classification. In it he placed *A. sativa*, *A. orientalis* Schreb., *A. strigosa* Schreb., *A. brevis* Roth., and *A. nuda* in one group, which he called *Sativae*; whereas in a second group *Agrestes*, which he subdivided into *Biformes* and *Conformes*, he placed *A. ventricosa* Balansa, *A. sterilis*, and *A. eriantha* Dur. under the *Biformes* and *A. longiglumis* Dur., *A. clauda* Dur., *A. hirsuta* Moench., *A. barbata* Brotn., and *A. fatua* under *Conformes*. He considered var. *glabrescens* (*A. hybrida* Peterm.; ap. Koch, Synops. Fl. Germ., ed 2, 917—*A. byzantina* C. [K.] Koch) belonged to *A. fatua*.

Trabut (81), in 1907, carefully traced the descent of the red oat from the wild *Avena sterilis maxima* Perez Lara through various transitional forms to the cultivated red oats, which he named *A. sterilis culta*. From his illustrations and descriptions there seems little room to doubt that his *A. sterilis algeriensis* and Koch’s *A. byzantina* are synonymous. It was on the basis of priority that Coffman, Parker, and Quisenberry (10), in 1925, proposed that the cultivated red oats grown in America be designated as belonging to *A. byzantina* rather than to continue to designate them as “cultivated varieties” or “cultivated types of *A. sterilis*”, as has been previously done. That change is now rather generally accepted in the United States and in some other English-speaking countries.

The present day belief that *Avena sativa* originated from *A. fatua* seems to have been based primarily upon the proposal of Haussknecht (32), in 1885, which later was clarified by Thellung (77), in 1912. Haussknecht’s outline (32, p. 30) on the interrelationship of oats species as shown by Thellung is given in Table I.

Zade (87)*, in 1918, summarized previous literature on the origin of cultivated oats and stated, “If we also consider the analogous conditions in the other cereals and their strains, and if we conclude that the coarse wild species represent the

---

1Contribution from the Division of Cereal Crops and Diseases, Bureau of Plant Industry, Soils, and Agricultural Engineering, Agricultural Research Administration, U. S. Dept. of Agriculture. Received for publication July 5, 1946.

2Senior Agronomist.

*Figures in parenthesis refer to “Literature Cited”, p. 999.

4From translation by Dr. Theo Holm, June 30, 1926.