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ITEMS FROM UKRAINE

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New morphological trait in the genus Triticum L.

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In awned forms of the genus *Triticum*, awns usually are jagged in varying degrees. Smooth awns are relatively rare, they are found only in the cultivated tetraploid wheats *T. turgidum* subsp. *durum* and *turgidum* (Dorofeev 1972) and forms with pubescent awns still have not described in wheat (Tsvelev 1976; Dorofeev 1979). We found such forms in the progeny from a cross '*T. timopheevii* subsp. *timopheevii* / *T. turgidum* subsp. *durum* cultivar Spadshchyna (Fig. 1). In these forms, awn pubescence is a continuation of the pubescence from the top of the lemma and extends to a length of about 2.5 cm, regardless of awn length. In hybrid F_1 plants, the awns were jagged but not pubescent.

Of the 154 florets of hybrid F_1 plants pollinated with Spadshchyna, 22 seeds were obtained and 12 F_1BC_1 plants were grown. From 12 spikes in the F_2BC_1 , four were fertile with seed set from 2.8 to 47.4%. All the spikes had light glumes with light awns and were slightly pubescent. When 25 seeds were sown, plants of F_3BC_1 were obtained, which were divided into five groups.

1. Spikes of dark coffee color, awned, glumes not pubescent, awns dark and pubescent. These five plants were derived from spontaneous pollination of the hybrid by pollen of *T. persicum*. Their fertility was close to zero; only one shriveled seed was found.
2. Spikes light with black pubescent awns, glumes not pubescent. This group included two plants with spike fertility of 18.2–25.0%.
3. Spikes light with black pubescent awns, glumes pubescent. We have assigned to this group five plants with a fertility of 19.2–34.2%.
4. Spikes with light pubescent glumes and awns. To this group were assigned eight plants with fertility from 2.6–3.1%.
5. Spikes light, no pubescence, glumes not pubescent. The group included five plants with a fertility from 2.6–9.4%.



Fig. 1. Awn pubescence in the progeny from a cross '*T. timopheevii* subsp. *timopheevii* / *T. turgidum* subsp. *durum* cultivar Spadshchyna. Awn pubescence is a continuation of the pubescence from the top of the lemma and extends to a length of about 2.5 cm, regardless of awn length.

Because all these hybrids have a *T. timopheevii* subsp. *timopheevii* cytoplasm, we concluded that most of the plants obtained from a backcross with durum wheat and all plants from pollination by *T. persicum* had cytoplasmic male sterility. Sporadic plants with relatively high fertility obtained from backcrosses with durum wheat carried *Rf* genes inherited from *T. timopheevii* subsp. *timopheevii*.

Thus, awn pubescence may be combined with light and dark colored glumes, the presence or absence of pubescent glumes, dark and light colored awns, cytoplasmic male sterility, and presence of fertility restoration genes. Regarding the genetic nature of the pubescent awns, this feature is not evident in any of the parental forms or F_1 hybrids, but only appears in the progeny of step crossings and backcrosses. Its expression in *T. timopheevii* subsp. *timopheevii* apparently is suppressed by an inhibitor gene, which is not inherited in all progeny except descendants of backcrosses as a result of recombination. These plants manifest the awn pubescence.

Presence of awn pubescence in forms with enough fertility for distant hybrids, from 18–34%, it is possibility to obtain pubescent forms. We offer to combine these forms into a group of morphological races under the name convar. *pilosoaristatum* E. Tverdokhlebov. Awn pubescence is a trait that may be easily recognized and can serve as a morphological marker in identifying wheat gene pool accessions. In particular, they can mark awned cultivars of wheat for ensure their protection using a DUS test. In the family Poaceae, this feature is well manifested in species of feather grass (*Stipa* L.). In the Triticinae subtribe, according to our observations, this feature is manifested in *Dasyphyrum villosum* at the bottom of the awns as an extension of the glume keel pubescence by hard trichomes.

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ITEMS FROM THE UNITED STATES OF AMERICA

INDIANA

USDA–ARS AND PURDUE UNIVERSITY

Departments of Agronomy, Botany and Plant Pathology, Entomology, and the USDA–ARS Crop Production and Pest Control Research Unit at Purdue University, West Lafayette, IN 47907, USA.

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Wheat production.

According to the USDA National Agricultural Statistics Service, harvested wheat acreage in Indiana in 2010 totaled 250,000 acres. Acreage seeded to wheat in the autumn of 2009 was unusually low due to wet soil conditions in September and October, 2009; this significantly delayed harvest of corn and soybean and, thus, delayed and reduced seeding of wheat. Wheat production was down from 470,000 acres in 2009. Total production was estimated at 13.8×10^6 bushels, with an average yield at 60 bu/acre. Winter survival of wheat during the winter of 2009–10 was excellent, but average temperatures from February to mid-April were significantly below normal and soil moisture was higher than normal due