A DEFECTIVE SEED-COAT CHARACTER IN SOYBEANS

RALPH T. STEWART AND JOHN B. WENTZ

During their breeding and genetic studies with soybeans (Soja max), the authors observed a defective seed-coat character in one of their crosses. Data were taken on the inheritance of the character and an attempt is made in this paper to interpret these data.

Piper and Morse (2) reported that a number of black and brown varieties of soybeans were introduced from Korea which had the outer layer of the testa cracked so as to expose the inner white layer of the seed. In one variety, Widower, which had a black seed-coat, the splitting occurred in such a way as to give a net-like appearance of black and white color to the seed. The character reported in the present paper is very similar to, or possibly identical with, the one described by Piper and Morse.

DESCRIPTION OF THE CHARACTER

Fig. 1 shows photographs of normal and defective seeds. The seeds in A are brown in color and have normal seed-coats. It was observed that plants bearing brown or black seeds never exhibited the defective seed-coat character. Plants bearing buff or imperfect-black seeds exhibited the defective seed-coats as shown in B of Fig. 1. The seed-coats are “netted” and cracked in varying degrees. The cracks tend to occur more commonly around the edges of the cotyledons. Many of the seeds were split in threshing, due to the fact that the seed-coat was cracked practically all the way around the seed. The buff-colored seeds seemed to split more than the imperfect-black seeds.

The seeds in C of Fig. 1 are yellow mottled with buff pigment. It will be noted that there is some splitting of the seed-coat in the buff areas. Yellow seeds mottled with imperfect-black pigment behaved in the same manner.

ORIGIN OF CHARACTER

Certain F2 plants from the cross Wisconsin Black x Mandarin bore seeds with defective seed-coats. From this cross eight different color types appeared in the F2 generation, viz., yellow mottled with