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1. A note on a soybean mutant.

Seeds of S.J.2, a Thai soybean variety, were treated with gamma rays of a cobalt source in five different doses: 5, 10, 15, 20 and 30 krad, respectively.

In M_2 generation, yellow seedlings appeared in the treated materials, with the frequency ranging from 0.20 to 0.70%. Two different types of yellow seedlings were observed. The first type: the seedlings had both yellow cotyledons and yellow first single leaves. They died at the seedling stage. The second type: only the first single leaves were yellow, but turned green toward maturity.

Line Number 41-10 was obtained from the second type. Its plant height at maturity is somewhat shorter than that of the mother variety. This mutant has 44% protein (on dry matter basis), about 2% higher than that of the mother variety.

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1. An attention to the heritability of pod dehiscence as affected by environment.

Pod dehiscence or shattering is an agronomic character of importance in breeding soybeans adaptable to machinery cultivation. Caviness (1969) had presented heritability estimation of pod dehiscence in four crosses between varieties in the United States and the wild soybean, and the values in broad sense in F_2 generation were very high (over 90%). The author (Nagata, 1974) has reported results of observations of pod dehiscence under

different conditions with special regard to the moisture contents of plant parts, especially of seeds, and concluded that pod dehiscence was affected greatly by environment and year with reference to the meteorological conditions. The degrees of pod dehiscence seemed to be different between those in marine climate in Japan and in continental climates in the United States and other countries.

The author had tested the degrees of pod dehiscence in three crosses between an American variety resistant, and the Japanese varieties susceptible to the pod dehiscence during several years.

In general, heritability of pod dehiscence in our experiments in Japan was estimated to be very low, especially in the field (Table 1). Such a difference between those in field and in the glass-house (where pods were layed in bags of translucent parchment paper) was more significant in later segregating generations though it was not fully coincident among the crosses.

In our country, there is frequent rain and high humidity, and the appearance of the nature of pod dehiscence of the variety or strain is very variable. In field, the area for experiment becomes larger with advancement of generation, and so environmental variance becomes larger, especially in the humid and rainy climate in our country. In contrast to that in field, the environmental variance is capable of being limited in the glass-house where many strains or individuals are layed under comparatively uniform condition without the effect of rain. It should, however, be noted that the tests in the field are more practical for breeding soybeans than those in the glass-house.

In Japan, breeding of non-dehiscent varieties has not advanced up to the present. Because of this problem, the genetic differences between pod dehiscence resistant and susceptible varieties are not as great in Japan as in countries of continental climate. Cultivation of soybeans in our country was the system of hand labor of farmers in which pod dehiscence was not a problem for harvesting, but now harvest is being mechanized with small or medium-size harvesters adaptable to Japanese agriculture. Thus, pod dehiscent property of soybeans is becoming important for the agronomists in experiment stations.

It should be emphasized herein that testing pod dehiscence of soybeans ought to be carried on with consideration of the climatic or meteorological

conditions of the land or season of cultivation, especially in Japan and countries in Southeast Asia of marine climate.

Table 1

Estimate of heritability in the broad sense in F_2 generation from the cross, Tokachi Nagaha x Harosoy

V_E	In field	In glass-house
V_{F_1}	23.04%	37.50%
V_{PF_1}	30.04%	48.53%

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1. Research note from Applied Genetics Laboratory.

Wide variations of locally grown farmers' varieties were observed in Korea. The majority of varieties currently grown by farmers are unnamed and succeeded from their ancestors. The gene collection is urgently needed for the present varietal improvement and also to prevent the erosion of gene sources built up many centuries in this land. Mutation breeding and an establishment of soybean gene pool are now under progress.

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Editor's note

Dr. Kwon has sent 377 of these farmers' varieties to be added to the Germplasm Collection at Urbana, Illinois. These along with 152 recently received from the Office of Rural Development at Suwon and 73 collected by R. L. Bernard while in Korea in fall 1972 total approximately 600 new introductions of land varieties from Korea. The great majority are of maturity group IV