

Test in field

- ① Plant tubers of test cultivars in the infected field together with check cultivars.
- ② Evaluate the resistance based on the scab symptoms on the surface of the tuber coat.
- ③ Ten plants in a plot, 2 duplications.

Classify accessions into 1: extremely susceptible, 2: very susceptible, 3: susceptible, 4: rather susceptible, 5: intermediate, 6: rather resistant, 7: resistant.

Resistance to scab (*Streptomyces scabies*)

Plant in a field infected with scab together with checks, observe the symptoms on tubers at harvest time with 2 replications using 10 plants for each plot. Classify accessions into 1: extremely susceptible, 2: very susceptible, 3: susceptible, 4: rather susceptible, 5: intermediate, 6: rather resistant, 7: resistant. Nishiyutaka is classified into 2, Norin 1 and Danshakuimo into 3.

Resistance to root lesion nematodes (*Pratylenchus coffeae*)

Test method is the same as that for the genotype test for cyst nematode resistance. Classify accessions into 3: susceptible, 4: rather susceptible, 5: intermediate, 6: rather resistant, 7: resistant. Norin 1 is classified into 3, Toyoshiro into 5, Danshakuimo into 7.

3. Tertiary characters

<Essential items>

Tuber yield

Weigh tubers heavier than 20 g harvested from 10 ~ 20 plants per plot. Test is carried with 2 ~ 3 replications, and the obtained values are expressed by kg/10 a. Classify accessions into 1: extremely low, 2: very low, 3: low, rather low, 5: intermediate, 6: rather high, 7: high, considerably high, extremely high. Danshakuimo is classified into 4, Toyoshiro into 5, Norin 1 into 7, Nishiyutaka and Benimaru into 8.

Number of tubers

Count the number of tubers for each plot as in the case of tuber yield. Express by number per plant. Classify accessions into 1: extremely small, 2: very small, 3: small, 4: rather small, 5: intermediate, 6: rather large, 7: large, 8: very, 9: extremely large. Waseshiro is classified into 3, Norin 1 and Danshakuimo into 5, Nishiyutaka into 6, Benimaru into 8.

Yield of marketable tubers

Weigh tubers heavier than 60 g (large-sized tubers) as in the case of tuber yield. Classify accessions into 1: extremely low, 2: very low, 3: low, rather low, 5: intermediate, 6: rather high, 7: high, 8: very high, 9: extremely high. Danshakuimo is classified into 3, Toyoshiro into 5, Norin 1 into 7, Benimaru into 8.

Number of marketable tubers

Count the number of marketable tubers as in the case of the number of tubers. Classify accessions into 1: extremely small, 2: very small, 3: small, 4: rather small, 5: intermediate, 6: rather large, 7: large, 8: very large, 9: extremely large. Waseshiro is classified into 3, Norin 1 and Danshakuimo into 5, Benimaru into 7.

Flesh quality test

- ① Cut 4 ~ 5 middle-sized tubers into half longitudinally.
- ② Put half-cut tubers in a pan and pour water in the pan so as to fully cover the tubers.
- ③ Boil tubers by covering the pan with a lid, until the tubers become soft so as to be easily pierced through by bamboo sticks.
- ④ After boiling, throw away hot water and keep the tubers steamed for further 5 minutes.
- ⑤ One hour after boiling, examine the flesh quality and determine whether mealy or non-mealy.

Classify accessions into 1: extremely sticky, 2: considerably sticky, 3: sticky, 4: rather sticky, 5: intermediate, 6: rather mealy, 7: mealy, 8: considerably mealy, 9: extremely mealy. May queen is classified into 4, Norin 1 into 5, Danshakuimo into 6.

Degree of blackishness

Assess the degree of blackishness of flesh, one hour after boiling. Classify into 1: none, 2: negligible, 3: low, 4: rather low, 5: intermediate, 6: rather high, 7: high. Toyoshiro, Waseshiro and Nishiyutaka are classified into 1, May queen into 2, Danshakuimo into 3, Norin 1 into 5.

Degree of fragility of boiled tubers

One hour after boiling, observe tubers and determine the degree of fragility of the flesh of tubers. Classify accessions into 1: none, 2: very low, 3: low, 4: rather low, 5: intermediate, 6: rather high, 7: high. Waseshiro and May queen are classified into 2, Norin 1 into 3, Danshakuimo into 5, Dejima into 6.

Feeling to the palate

One hour after boiling, assess by a panel test consisting of more than 3 persons. Classify accessions into 3: smooth, 4: rather smooth, 5: intermediate, 6: rather rough, 7: rough.

Taste

One hour after boiling, assess by a panel test consisting of more than 3 persons. Classify accessions into 1: extremely bad, 2: considerably bad, 3: bad, 4: rather bad, 5: intermediate, 6: rather good, 7: good, 8: considerably good, 9: extremely good.

Starch value

The following two methods are applied.

- ① Test by Rayman balance.
- ② Measure weight of tubers in the air and weight of tubers in water. Calculate the specific gravity of tubers. Assess starch value based on the conversion table for specific gravity of starch value.

For either test, use 2.0 ~ 2.5 kg of tubers. Starch value of less than 12% is classified as low, starch value higher than 16% is classified as high, and the intermediate is classified as medium.

Score 1: extremely low, considerably low, 3: low, 4; rather low, 5: intermediate, 6: rather high, 7: high, 8: considerably high, 9: extremely high. Danshakuimo is classified into 3, Nishiyutaka into 4, Norin 1 into 5.

Whiteness of starch

- ① Remove soil and sand from the surface of 4 ~ 5 tubers weighing 80 ~ 120 g (total weight is about 300 g), by washing in water.
- ② Slice tubers and put them in a mixer by adding pure or distilled water and make tuber juice.
- ③ Separate starch from juice using 20, 50 and 100 mesh filters in a vessel of 3 liters.
- ④ To remove fine soil from starch, dissolve starch in 2 liter water and make starch precipitate. The same procedure is repeated 4 ~ 5 times.
- ⑤ After starch becomes clean, dry starch at a temperature lower than 60°C and mill it.
- ⑥ Measure whiteness of starch with the whiteness meter more than 2 times. Whiteness value lower than 90 is classified as low and whiteness value higher than 95 is classified as high.

Score 3: low, 4: rather low, 5: intermediate, 6: rather high, 7: high. Norin 1 and Benimaru are classified into 5.

Particle size of starch

Particle size is measured with a specific instrument. Measurement should be repeated more than 4 times. Score 3: small, 4: rather small, 5: intermediate, 6: rather large, 7: large. Norin 1 is classified into 3, Benimaru into 5.

Viscosity of starch

- ① Measure water content of starch, and dilute with pure or distilled water to obtain 450 cc of 4% starch solution.
- ② Measure the viscosity of starch with the Brabender's Viscograph. Measurement must be performed more than 2 times.

- ③ Measure the temperature at which the gelatinization start, maximum viscosity, and breakdown (the difference between the maximum viscosity and viscosity after keeping the materials at 92.5°C for 30 minutes).

Score 3: low, 4: rather low, 5: intermediate, 6: rather high, 7: high. Norin 1 and Benimaru are classified into 5.

Tertiary characters

<Optional Items>

Degree of browning of potato chips

Cooking procedure of potato chips

- ① Wash in water 3 ~ 4 potato tubers weighing 100 ~ 120 g without peeling the coat.
- ② Slice tubers, which are already cut into half, longitudinally. Select 3 ~ 4 slices less than 2.0 mm in width from the core of tubers.
- ③ Put sliced potatoes in water and rinse starch out from the surface of slices.
- ④ Wipe out water fully from the surface of potato slices with a cloth.
- ⑤ Put 15 ~ 16 slices in salad oil at 170 ~ 180°C and take them out when bubbles become small (or less than 2 minutes), in avoiding to add too many slices to decrease the oil temperature.
- ⑥ Put fried slices above the frying pan for a while, and remove extra oil from the slices fully.
- ⑦ Measure the degree of browning of chips by using a colorimeter (Agtron) or by comparing with the standard color chart of the International Potato Chip Association (refer to Photo. 1).

Score 1: none, 2: considerably low, 3: low, 4: rather low, 5: intermediate, 6: rather high, 7: high. Toyoshiro is classified into 2, Danshakuimo and Norin 1 into 5.

Degree of browning of fried potatoes

- ① Cut potatoes longitudinally into pillars 1 cm².
- ② Put cut potatoes in water and wipe water from potatoes.
- ③ Put cut potatoes in salad oil at 140°C and slowly fry them for about 2 minutes.
- ④ Transfer them to salad oil at 180°C and continue to fry them for 1 minute to make them crisp.
- ⑤ Evaluate the degree of browning of fried potatoes 1 hour after cooking compared with the standard color chart of the International Potato Chip Association.

Score 1: none, 2: considerably low, 3: low, 4: rather low, 5: intermediate, 6: rather high, 7: high. Toyoshiro is classified into 2, Norin 1 into 5.

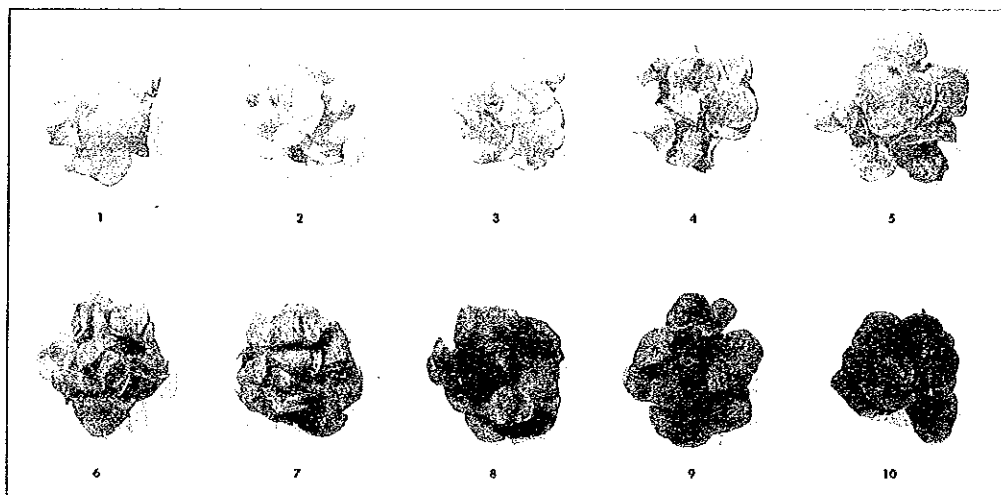


Photo. 1 Potato chip color reference standard.

III-7. Evaluation of Genetic Resources

Corn

by

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III-7. Evaluation of genetic resources

Corn

As corn is of a wind-pollinated nature, it is an extremely heterozygous crop. Corn cultivars are considered to be a group of ecotypes differentiated and adapted to a certain locality. As the performance of a corn cultivar is expressed by hybrid vigor, if the cultivar is inbred to a pure line, it soon loses its practical value, as it becomes less vigorous and dwarf.

As corn cultivars are genetically heterogeneous, new lines adapted to a new environment can be developed when the cultivars are cultivated under different environmental conditions. Thus, corn cultivars are unstable and adaptable. Presently the developed cultivars consist of a group of plants which are homogeneous in their main characteristics, with a certain level of hybrid vigor by intercrossing of plants within the group.

A late cultivar which was introduced from a foreign country can change into an early cultivar when cold temperatures occur early and only early constituents in the cultivar can escape the autumn cold. Similarly, cultivars often shift to a different trait, by adapting themselves to specific cultural conditions.

As the characteristics of individuals of a cultivar vary compared to cultivars of self-pollinating nature, homogeneity of the main characteristics of the individuals should be maintained through cultivation under climatic conditions similar to those of the original area. The cultivars should not be affected by natural or artificial selection.

Twenty plants should be used for the evaluation of the characters.

1. Primary characters

<Essential items>

Date of silking

The day when about 50% of plants underwent silking is recorded. Silking sometimes occurs after female ears extruded 3 ~ 4 cm from the axils, and sometimes, silks only appear directly from axils. The color of silks of some cultivars becomes gradually pink and further purple. After pollination, silks curl and become dry and brown, however if pollination is disturbed, silks continue to elongate and sometimes reach a length of

more than 50cm. Thus, the length and the degree of dryness of silk of mother plants can be used as a criterion of success of pollination in case of F₁ seed production (Fig. 1).

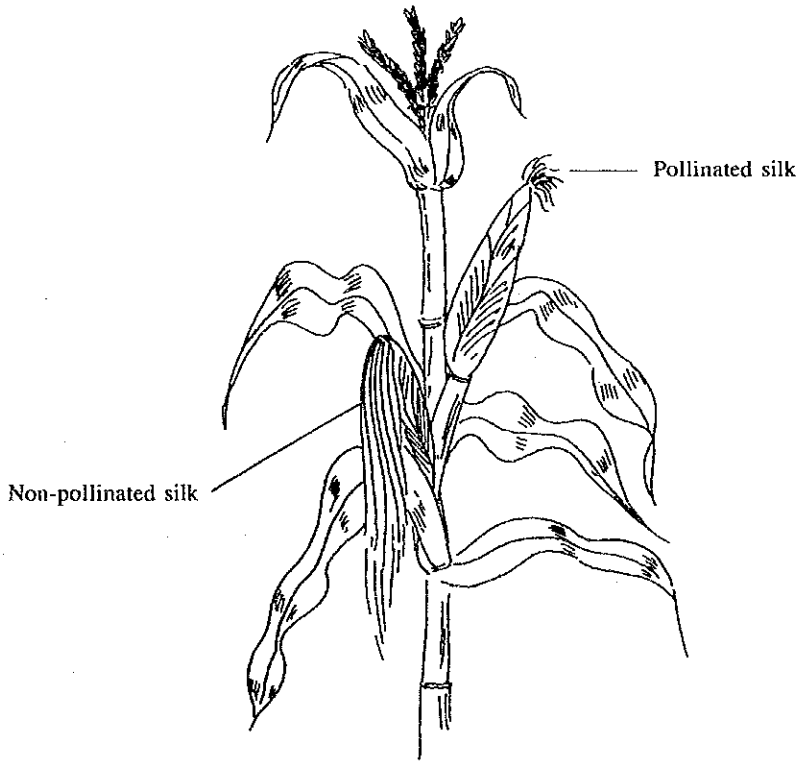


Fig. 1 Dryness of silk indicates success of pollination.

Plant height

Distance from ground level to the base of tassel is measured after the milk stage (cm).

Ear height

Distance from ground level to the node which bears the uppermost ear is measured after the milk stage (cm).

Diameter of stem

Long diameter is measured in the middle of the internode just under the node which bears the uppermost ear of the main stem of normally grown plants (mm).

Number of tillers

Number of tillers except for the main stem is counted at the date of maturity.

Date of maturity

The day when most grains at the top of ear become as hard as wax is recorded. The determination of the date of maturity is not easy, because the surface of the grains becomes hard early in flint corn, followed by dent corn, and lately in sweet corn. In corn, water content of embryos remains high, even after the surface of the grains becomes hard, and the date of maturity corresponds to the day when grains are almost completely dehydrated. Therefore, it is necessary to measure the water content of 2 ~ 3 grains at the top of ears.

Days from sowing to maturity

Number of days from the next day of sowing to date of maturity is recorded.

Length of ear

Length from the base to the top of the ear is measured.

Diameter of ear

Diameter is measured in the central part of the ear.

Number of kernel rows

Number of kernel rows is counted in the central part of the ear. Minimum and maximum numbers are also recorded.

Arrangement of kernel row

Classified into 1: regular, 2: spiral, 3: irregular (Fig. 2).

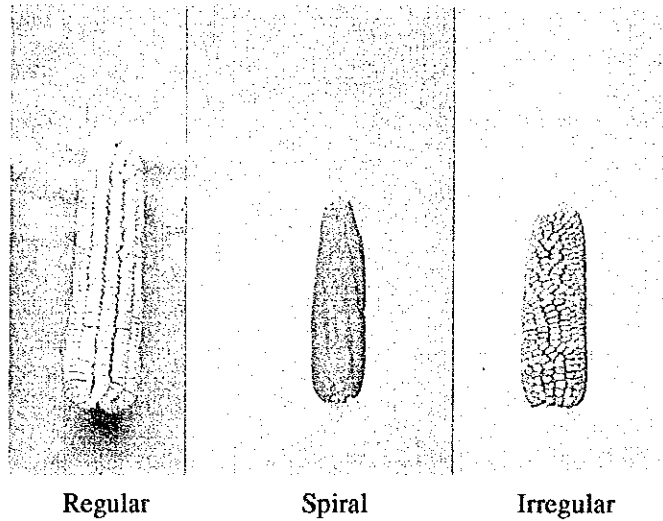


Fig. 2 Arrangement of kernel row.

Color of kernel

Observed at the date of maturity and classified into 1: white, 2: yellow, 3: orange, 4: red, 5: purple, 6: mixed, 9: others (refer to Photo. 1).

Kernel texture

Observed at the date of maturity and classified into 1: dent, 2: semi-dent, 3: flint, 4: semi-flint, 5: pop, 6: sweet, 7: flour, 8: waxy (refer to Photo. 2).

<Optional items>

Vigor in early stage

Observed at 6 ~ 10 leaf (including not yet fully expanded leaves) stage and classified into 1: extremely low, 2: considerably low, 3: low, 4: rather low, 5: intermediate, 6: rather high, 7: high, 8: considerably high, 9: extremely high.

Date of tasseling

The day when about 50% of the plants underwent tasseling is recorded.

Date of tassel flowering

The day when tassels of about 50% of plants have flowered is recorded. Enough care is necessary because tassels flower usually after the flag leaf completely unfolded, but, sometimes tassels flower in leaves not yet unfolded.

Color of anther

Observed at the flowering of the tassels and classified into 1: green, 2: yellow, 3: pink, 4: red, 5: purple, 9: others.

Color of silk

Observed at the silking stage, and classified into 1: green, 2: pink, 3: salmon pink, 4: red, 5: purple, 9: others.

Days from sowing to silking

Days from the day following sowing to the day of silking are recorded.

Difference between tasseling date and silking date

As male flowers usually mature earlier than female flowers, self-pollination is interrupted and the maintenance of hybrid vigor is promoted. However, in some cultivars, tassels and silks appear simultaneously and in some cultivars female flowers mature earlier than male flowers. When the sowing time of parents of F₁ cultivars is determined, the above mentioned trait should be taken into consideration in addition to the date of tasseling and date of silking.

Yellow-ripe stage

When the starch substance of 75% of the grains of most plants becomes so hard that it cannot be pressed out, the yellow-ripe stage is recorded. The degree of hardness of grains can be evaluated by scratching grains with a nail. The stage is expressed in month and day.

Number of ears

Number of ears is counted.

Number of effective ears

Number of ears which are bigger than $\frac{1}{3}$ of the mean ear length is counted at the date of maturity.

Type of ear

Type of ear is observed in harvested ears after drying and husking and classified into 1: cylindrical, 2: conical, 3: elliptical conical (Fig. 3).

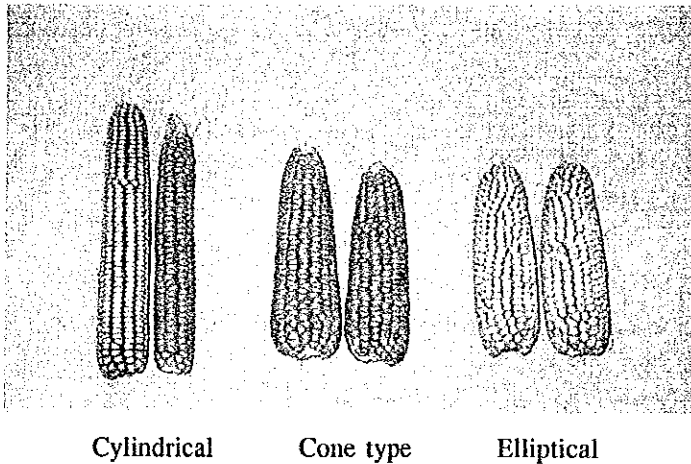


Fig. 3 Type of ear.

Development of prop roots

The degree of development of prop roots is observed on the main stem and classified into 0: none, 1: extremely low, 2: considerably low, 3: low, 4: rather low, 5: intermediate, 6: rather high, 7: high, 8: considerably high, 9: extremely high.

Length of leaf

Length of leaf blade attached to the node which bears the uppermost ear is measured (cm).

Width of leaf

Width of leaf blade attached to the node which bears the uppermost ear is measured and the average is expressed by the figures up to the first decimal point.

Total number of leaves per plant

Number of leaves except cotyledon is counted on the main stem of normally grown plants.

Order of node in ear setting

Order of node which bears the uppermost ear is determined on the main stem of normally grown plants.

Angle of upper leaves

Angle of the main stem to the second and the third leaf from the top is observed and classified into 1: acute, 2: acute ~ rather acute, 3: rather acute, 4: rather acute ~ intermediate, 5: intermediate, 6: intermediate ~ rather obtuse, 7: rather obtuse, 8: rather obtuse ~ obtuse, 9: obtuse.

Color of leaf

Color of leaf blade attached to the top node which bears ear is obtained and classified into 1: extremely light green, 2: lighter green, 3: light green, 4: rather light green, 5: green, 6: rather dark green, 7: dark green, 8: darker green, 9: extremely dark green.

Length of tassel

Distance from the node which bears a tassel to the top of the tassel is measured on the main stem of normally grown plants.

Number of primary branches on tassel

Number is counted on the main stem of normally grown plants.

Type of tassel

Classified into 1: dense type, 2: tilted type, 3: normal type. Tassels become fragile and easily broken by the wind and other causes after flowering. Therefore, tassel types should be observed during flowering or soon after flowering (Fig. 4).

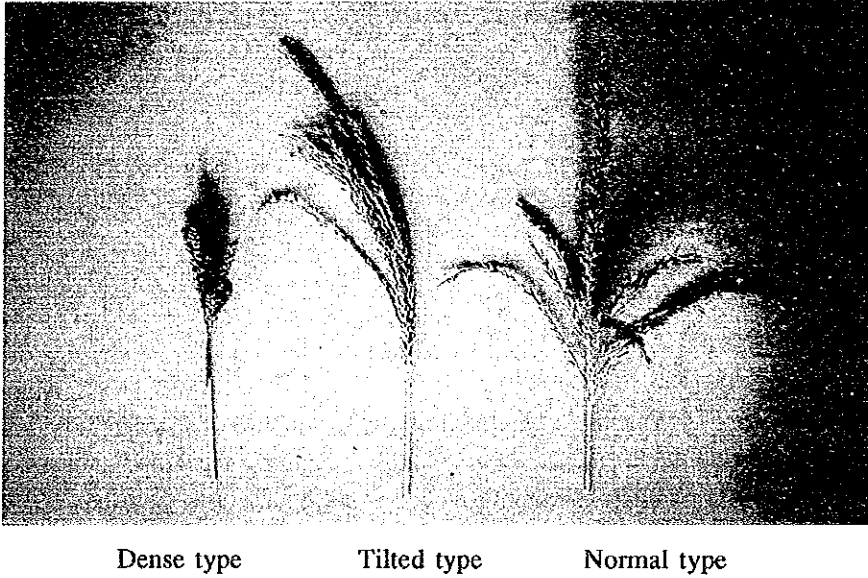


Fig. 4 Type of tassel.

Number of kernels per row

Number of kernels is counted on representative two rows per ear.

Number of kernel per ear

Calculated from the number of kernels per row \times number of kernel rows.

Weight of ear

Weight of air-dried ear is measured.

Weight of kernel per ear

Weight of air-dried kernels is measured for ear, after abortive kernels and damaged kernels are removed.

Threshability

Evaluated after fully dried, and classified into 3: high, 5: intermediate, 7: low. Accessions not easily threshed tend to give rise to screenings in case of high water content. Parts of cob attached to kernels if incompletely threshed, give rise to errors for liter weight and 100 kernel weight.

Weight of cob

Air-dried cob is weighed.

Diameter of cob

Diameter is measured in the central part of the cob.

100 kernel weight

Two sets of 100 full kernels are weighed, and the mean value is recorded.

Liter weight

Mean of liter weights measured twice after removal of abortive kernels and damaged kernels is recorded.

Kernel size

Based on visual observation, the kernel size is classified into 3: small (100 kernel weight is smaller than 20g), 4: rather small, 5: intermediate, 6: rather large, 7: large (100 kernel weight exceeds 40g).

Kernel length

Measured for 50 grains sampled from the central part of ear (mm).

Kernel width

Measured for 50 kernels used for kernel length (mm).

Kernel thickness

Measured for 50 kernels used for kernel length (mm).

Kernel type

Observed flatly placed kernels at the maturity stage, and classify into 1: completely round, 2: considerably round, 3: round, 4: rather round, 5: intermediate, 6: rather wedged, 7: wedged, 8: considerably wedged, 9: completely wedged (Fig. 5).

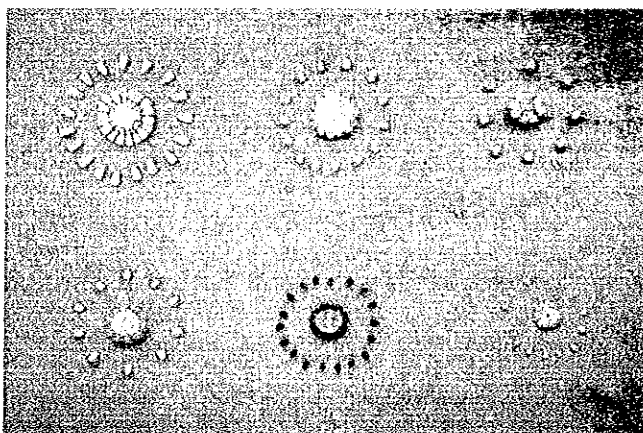


Fig. 5 Variation of kernel type.

Color of cob

Classified into 1: white, 2: pink, 3: red, 4: brown, 5: mixed, 9: others. In old cultivars, color of cob was white, while color of cob is mixed in the recently developed cultivars.

Genetically unfavorable characteristics

Kinds and percentage of plants with genetically unfavorable characteristics are observed for whole plants in each growth period.

Percentage of sterile plants

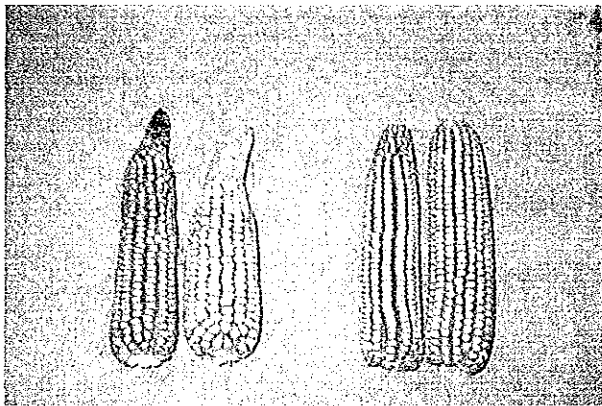
The percentage of sterile plants to the total number of plants at the maturity stage.

Degree of seed setting at the top of ear

Classified into 3: low, 5: intermediate, 7: high. In case husks are shorter than ears, seed setting is poor. In addition, there are some genetically sterile cases irrespective of husk covering (Fig. 6.).



Inadequate seed setting of pollinated ear due to short husks



Abnormal seed
setting

Normal seed
setting

Left: Caused by short husks

Right: Genetic abnormality, irrespective of husk covering

Fig. 6 Abnormal seed setting.

2. Secondary characters

<Essential items>

Resistance to root lodging

Percentage of plants with root lodging in late and dense planting is recorded. In addition, resistance against pulling is also measured with a special instrument. Observation and pulling measurement are carried out for 10 plants with 2 replications. Classify the resistance into 1: extremely low, 2: considerably low, 3: low, 4: rather low, 5: intermediate, 6: rather high, 7: high, 8: considerably high, 9: extremely high. Stalk breaking is categorized into the next item (Fig. 7).

Root lodging is often caused by typhoons and by strong thunder storms in summer. At the internode elongation stage, even strong cultivars become susceptible to root lodging, with small intervarietal differences. Recovery from root lodging is easy before heading, unlike after heading. Under these circumstances, sowing at 2 ~ 3 different times should be performed for the evaluation of root lodging.

Resistance to stalk lodging

Percentage of plants with stalk lodging is recorded. In addition, resistance against breaking is recorded by a test using a pulling instrument. Classify the resistance into 1: extremely low, 2: considerably low, 3: low, 4: rather low, 5: intermediate, 6: rather high, 7: high, 8: considerably high, 9: extremely high (Fig. 7).

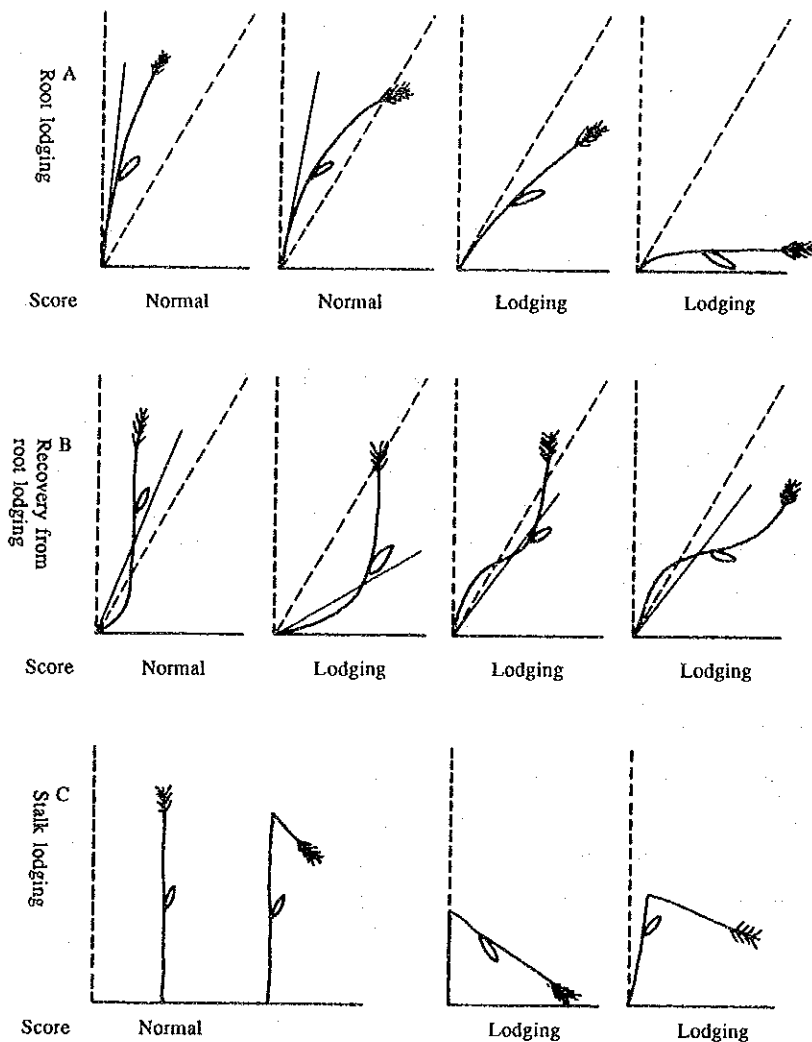
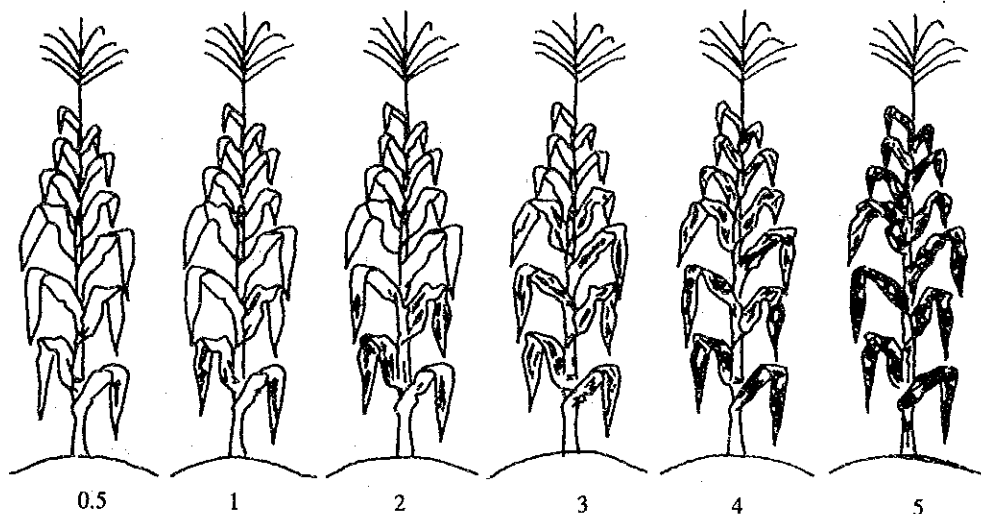


Fig. 7 Root lodging and stalk lodging.

Resistance to southern leaf blight (*Cochlibolus heterostrophua*)

Resistance is evaluated for 10 plants with 2 replications. Rate of infection is scored based on the infection index of Elliot and Jenkins (Fig. 8) obtained in artificially infested or naturally infested fields. Resistance is classified into 1: extremely low, 2: considerably low, 3: low, 4: rather low, 5: intermediate, 6: rather high, 7: high, 8: considerably high, 9: extremely high (refer to Photo. 3).



0.5: 1 ~ 2 small lesions on lower leaves.

1: Several lesions on lower leaves.

2: Many lesions on lower leaves.

3: Many lesions on lower leaves and several lesions on middle leaves.

4: Many lesions on lower and middle leaves and some lesions on upper leaves.

5: Many lesions on all leaves, and sometimes, plants almost die before maturity.

Fig. 8 Index of severity (Elliot and Jenkins).

Resistance to leaf blight (*Trichometasphaeria turcica*)

Resistance is observed for 10 plants with 2 replications. Rate of infection is scored based on the infection index of Elliot and Jenkins obtained in artificially infested or naturally infested fields. Resistance is classified into 1: extremely low, 2: considerably low, 3: low, 4: rather low, 5: intermediate, 6: rather high, 7: high, 8: considerably high, 9: extremely high (refer to Photo. 4).

Resistance to rice black-streaked dwarf virus

Resistance is obtained for 10 plants with 2 replications. Rate of infection is scored based on the infection index obtained in artificially infested or naturally infested fields. Date of observation is also recorded. Resistance is classified into 1: extremely low, 2: considerably low, 3: low, 4: rather low, 5: intermediate, 6: rather high, 7: high, 8: considerably high, 9: extremely high (refer to Photo. 5).

<Optional items>

Resistance to smut (*Ustilago maydis*)

Resistance is observed for 10 plants with 2 replications. Percentage of infected plants is observed when the infection becomes apparent in artificially infested or naturally infested fields. Date of observation is also recorded. Resistance is classified into 1: extremely low, 2: considerably low, 3: low, 4: rather low, 5: intermediate, 6: rather high, 7: high, 8: considerably high, 9: extremely high.

Resistance to rust (*Puccinia sorghi*)

Resistance is observed for 10 plants with 2 replications. Degree of infection is observed and evaluated based on the criteria listed below when the infection becomes apparent. Date of observation is also recorded. Resistance is classified into 1: extremely low, 2: considerably low, 3: low, 4: rather low, 5: intermediate, 6: rather high, 7: high, 8: considerably high, 9: extremely high.

Resistance to corn borer (*Ostrinia furnacalis*)

Observed when the damage becomes apparent. Date of observation is also recorded. Resistance is classified into 1: extremely low, 2: considerably low, 3: low, 4: rather low, 5: intermediate, 6: rather high, 7: high, 8: considerably high, 9: extremely high.

Resistance to cabbage army worm (*Mamestra brassicae*)

Observed when damage becomes apparent. Date of observation is also recorded. Resistance is classified into 1: extremely low, 2: considerably low, 3: low, 4: rather low, 5: intermediate, 6: rather high, 7: high, 8: considerably high, 9: extremely high.

3. Tertiary characters (Corn for silage production)

All the tertiary characters apply to corn for silage production. For the evaluation of adaptability for silage production, the size of the experimental plot should exceed 2.5 m², with 2 replications and 20 plants. In addition to the general items for corn for grain production, the following tertiary characters are evaluated for corn for silage production.

<Essential items>

Fresh foliage weight

Fresh weight of stems and leaves including ear stems and husks without ears is measured at the yellow-ripe stage as kg/a.

Fresh ear weight

Fresh weight of ear except stems and husks of ears is measured at the yellow-ripe stage.

Fresh total yield

Calculated from fresh foliage weight + fresh ear weight as fresh total weight.

Dry matter percentage of foliage

More than 5 plants (fresh weight of more than 1 kg) are cut into pieces and weighed for the determination of the fresh weight. After drying with a power drier at 70°C for 48 hours the dry weight is determined. The percentage of dry matter is calculated. Enough care should be taken to eliminate errors due to individual variation and sampling.

Dry weight of foliage

Calculated from fresh foliage weight \times dry matter percentage of foliage (kg/a).

Dry matter percentage of ear

Ears from more than 10 plants (fresh weight of more than 2kg) are cut into pieces and weighed for the determination of fresh weight. After drying with a power drier at 70°C for 48 hours the dry weight is determined.

Dry weight of ear

Calculated from fresh ear weight \times dry matter percentage of ear and expressed as kg/a.

Total dry weight

Calculated from dry weight of foliage + dry weight of ear. Expressed by kg/a.

Sugar content of stem

Measured with Brix meter at yellow-ripe stage on internodes near the uppermost node which bears ear. Measured for 10 plants with 2 replications.

<Optional items>

Percentage of digestible dry matter

Measurement is carried out by digestion test or enzyme test.

Percentage of crude protein

Measurement is carried out by the Kjeldhal method or with an ultra red wave analyzer for 2 samples from each of 2 replications.

Occurrence of sterility in dense planting

Percentage of plants with sterile ears caused by dense planting is classified into 0: none, 1: extremely scarce, 2: considerably scarce, 3: scarce, 4: rather scarce, 5: intermediate, 6: rather frequent, 7: frequent, 8: considerably frequent, 9: extremely frequent.

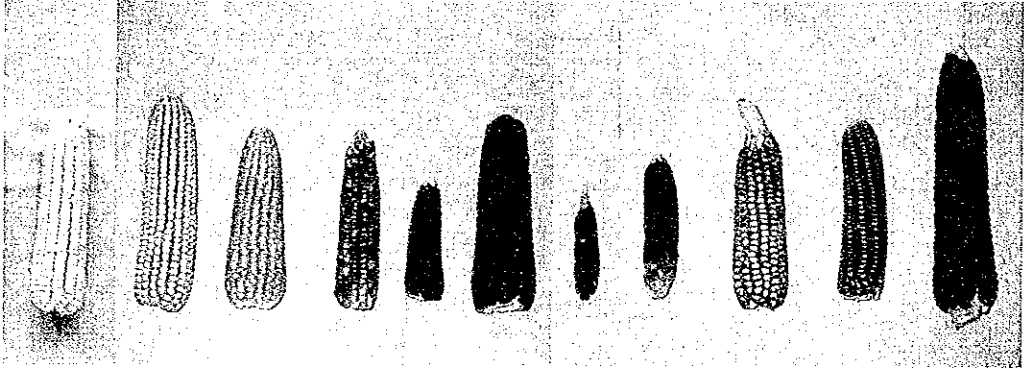
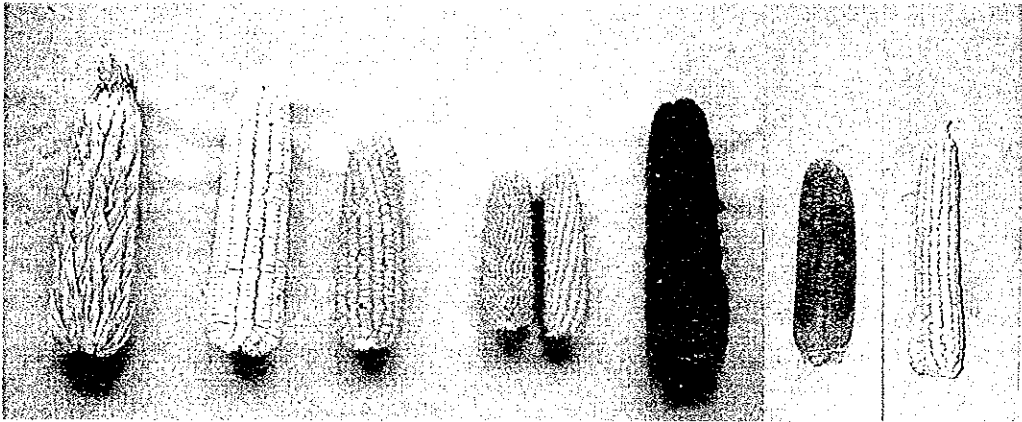


Photo. 1 Variation of kernel color.



Pod Dent Flint Pop Flour Sweet Waxy

(Left: (Right:
Rice type) Pearl type)

Photo. 2 Variation of kernel texture.



Photo. 3 Southern leaf blight lesions.



Photo. 4 Leaf blight lesions.



Susceptible line

Resistant line

Photo. 5 Symptoms associated with infection with rice black-streaked dwarf virus.

JICA