STANDARD DESCRIPTIONS

OF

REGISTERED OAT VARIETIES

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STANDARD DESCRIPTIONS OF REGISTERED OAT VARIETIES

INTRODUCTION

The identification of oat varieties has long been a complex problem with agronomists and others interested in the study of oats and many attempts have been made, especially by non-Canadians, to classify and describe them. Unfortunately, none of these systems of classification or methods of description is entirely applicable to varieties grown in Canada where their response to environment is peculiarly Canadian in character. Obviously a study of the nature and extent of this response must precede any serious attempt to construct a satisfactory classification here or elsewhere. Such a study was begun by the author in 1927 with over thirty varieties, actual descriptions however being limited to those varieties which thus far have been accepted for registration in Canada by the Canadian Seed Growers' Association. The need for precise descriptions of these varieties is imperative in view of the high standard as regards purity of variety and trueness to type demanded of Registered Seed by the above organization.

The descriptions herein given follow closely the plan outlined by the Committee on Norms of the C.S.G.A. They have also been reviewed by the institutions responsible for the introduction of the varieties with which this deals.

MATERIAL AND METHODS

In undertaking this work care was taken first of all to secure material that represented the generally accepted variety type in each case. A pure line of each variety was then developed under isolation and used exclusively throughout.

Seed of the varieties required was collected from the various plant breeding institutions throughout Canada and grown at Ottawa in small plots adjoining the so-called verification plots of Elite Stock seed brought from all parts of Canada for verification as to purity and trueness to type. This arrangement offered an exceptional opportunity to study the existing type of these varieties and to observe the range of variation within each.

On the basis of the above studies, together with descriptions furnished by the Institutions responsible for the development of certain of the varieties considered, single head selections representing the type most generally accepted, were made in 1928. These selections were increased in head rows, care being taken to reduce the possibilities of natural crossing as much as possible by growing wheat in alternate rows.

A portion of the progeny of these selections was sent to ten different Branch Farms in the Federal Experimental Farms System—five in Eastern Canada and five in the West—during each of three years. This seed was grown in head rows, usually 20 plants to the row, the seeds being spaced approximately 2 inches apart and the rows 7 inches. The plants were under close observation throughout the growing season and the various field characters were studied and careful notes taken by those in charge. The data obtained, along with panicle and straw specimens were forwarded to Ottawa at the end of each season when grain and glume characters were minutely studied and photographed.

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CHARACTER STUDIES

In considering taxonomic characters attention has been given primarily to those characters which have proven relatively constant under widely diverse conditions. In a country like Canada, where soil and climate vary enormously, it is extremely important to know the limits of character variation under various conditions of growth. With this end in view, a good deal of study has been devoted to the actual amount of variation existing in certain of the major morphological characters included in the descriptions submitted. While results of these studies are not presented at this time, they constitute nevertheless, the foundation upon which the said descriptions are based.

It must be recognized that while there is little difficulty in identifying and classifying the various oat species, the identification of varieties within the species is much more difficult since the distinguishing characters in the latter case are much less pronounced. Quite frequently for instance, certain of these characters are either missing or are so much reduced that their value for identification purposes is limited. Many varieties differ only in the degree of expression of some particular character or characters and therefore it becomes necessary to study them very minutely and systematically in order to make use of them.

The literature dealing with the classification and identification of oat species and varieties dates back at least as far as 1885. Many foreign investigators have attempted classifications of the Avena species but the methods used have been widely different. It is not proposed here to discuss nor to criticize the systems used by these workers, but it is interesting to note the differences of opinion regarding the relative importance placed on certain morphological and physiological characters for identification purposes.

Perhaps the most useful and comprehensive classification and description of oat species and varieties thus far published is by Etheridge of the Agricultural Experiment Station, Cornell University, Ithaca, N.Y., issued in 1916. In this work is incorporated a review of the systems proposed by previous investigators and the relative practical usefulness of each is pointed out. Many varieties well known in Canada have been included in the list of descriptions. No attempt, however, apparently was made to study the expression of the characters under different environmental conditions, the descriptions being based exclusively on the environment of New York State.

In the present bulletin, the descriptions are based on both morphological and physiological characters as expressed over a wide range of soil and climatic conditions.

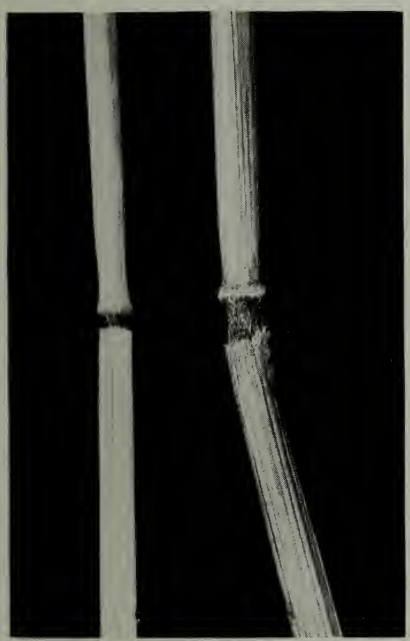
CHARACTER DESCRIPTIONS

Early growth.—Varieties of oats often differ in their habits of growth during the seedling stage. This character expresses itself in three fairly distinct types of growth, namely, prostrate, semi-spreading, and erect. The character is most useful, however, in classifying the whole genus of Avena, rather than for any particular species. Most of our cultivated varieties in Canada belong to the erect type. In the following descriptions, this character cannot be made use of since all the varieties described are of the erect type.

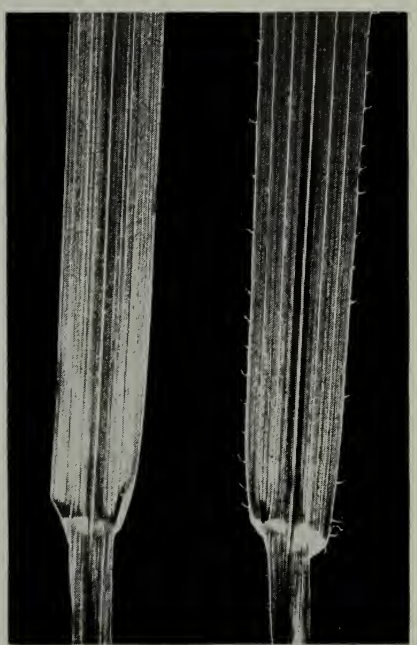
Time of Maturity.—Oat varieties can be classified into three maturity groups, namely, early, medium and late. The actual number of days from seeding to maturity varies naturally with environment, and therefore it is chiefly by comparison between varieties at any particular place that we can hope to make the best use of this character for identification purposes.

Straw.—The straw of oat varieties varies a good deal in such characters as length, size and strength, and when studying varieties belonging to widely different groups, these characters become quite useful for identification. With

our standard cultivated varieties, however, these differences are less apparent and the usefulness of such characters is rather limited. Environmental influences affect the size, length and strength very materially, although the same relative differences usually show up when varieties are grown under a common environment. The size of straw in oat varieties can be classed as fine, medium or coarse; and while actual measurements mean very little, fine strawed varieties usually average about 4 m.m. in diameter, while the coarse strawed varieties will reach 7 m.m. or more. Length of straw has been classified into short, mid-tall and tall. Short strawed varieties under Ottawa conditions will average around 35 inches, while tall varieties average 45 inches or more. The colour of the straw at maturity is of doubtful taxonomic value since environment is responsible to a large degree for the expression of this character. There is, however, an exception to this statement, namely, the appearance of a pinkish tinge towards maturity in certain varieties. This pinkish colour is quite characteristic and can be relied upon under normal



Pubescence at nodes. Right, extremely heavy pubescence. Left, glabrous.



Leaf pubescence. Left, glabrous. Right, pubescent.

conditions. The presence of short hairs on either side of the first or second node below the panicle can be used fairly effectively in identifying varieties. There are some varieties that are always pubescent at the nodes, while others are always glabrous. Many varieties, however, that show a moderate amount of pubescence vary in this respect from practically glabrous to quite heavy pubescence. Such varieties have been classed in this work as being medium pubescent.

Foliage.—The foliage of oat varieties contributes three characters useful for identification. These are, quantity of foliage, leaf width and leaf pubescence. The quantity of foliage being relative, is useful only in so far as it can be correlated with other characters. In this connection it has been observed that generally speaking those varieties having wide leaves and coarse

straw can also be classed as producing abundant foliage. Varieties will naturally grade into each other for this character and therefore, the two extreme groups become of most value for description purposes. The presence of fine hairs or cilia on the leaf margins of certain varieties provides a fairly reliable aid to identification. Many varieties are entirely free of these hairs, some have traces at the very base of the leaf blade, while others carry marginal pubescence practically the full length. When this character is expressed only as a trace in a variety, it is likely that some plants within the variety will be entirely glabrous and therefore, the character becomes of most value in identifying varieties that are either completely glabrous or fully pubescent.

Panicle.—While there are many minor characters associated with the type of the panicle, few can be used except for detailed description purposes. The most distinctive difference in type of panicle is the spreading type as contrasted with the side or cluster type. Since all the varieties in this work are of the spreading type this character is of no value. The general attitude of the rachis, the branches and the spikelets, while of little value for classification, becomes useful in descriptions in order to assist in establishing a mental picture of the general panicle shape.

Outer glume.—While there is a considerable amount of variation both in the shape and veining of the outer glumes of the spikelet within a variety, there are often quite obvious differences in these characters between varieties. In shape, these glumes may be comparatively long and slender or short and broad. The veining is not constant within a variety but certain varieties may range between different extremes and therefore, have different means.

Grain.—The general characters of the grain vary within wide limits under various conditions of growth and can only be used in a limited way for identification or description purposes. The grain is classified as long, medium or short, and broad, medium or narrow; based on an average sample of Banner as being medium long and of medium width. The crease of the grain varies from wide to narrow and from shallow to full, according to environment, but under uniform conditions this character becomes useful in that it denotes in general the quality of a variety which is looked upon as a variety characteristic. The tip of the grain may be short or long, pointed or blunt or intermediate between these extremes. The presence of hairs on either side of the callus at the base of the grain is a mark of considerable value in identifying oat varieties. These hairs, often referred to as basal hairs, are in some varieties always present under all conditions of growth. In other varieties, basal hairs are either absent or appear only occasionally as traces. When only traces are present in a variety, environment apparently influences their expression both as regards frequency and length.

Lemma.—Among the lemma characters the colour and awn development have long been used as distinctive characters in oat varieties. Since most of our common cultivated varieties in Canada are white, however, colour becomes of little value. In the descriptions following, colour is used with two varieties, one a yellow and another showing a pinkish tinge at maturity. The awns of oat varieties are extremely variable and are influenced apparently by soil and weather conditions. There are, however, varieties that are practically awnless, and others that carry a large number of awns under all conditions of growth, and further, the general strength and shape of the awn is to some extent characteristic and constant within a variety. It is possible then to use this character quite frequently and with considerable reliability in identifying oat varieties, particularly in a standing crop of mature grain. The veins of the lemma while variable under extreme conditions, are of some value in classification work. In awned varieties, the awn, if present is a prolongation of the

middle vein of the lemma, on either side of which there may be three or four veins present, depending on the variety. Among the awnless varities studied, there are usually seven veins, three on either side of the central vein. It has been observed that under very favourable conditions for growth, some varieties that commonly show seven veins will develop an extra short vein at the extreme edge of the lemma.

Rachilla.—The rachilla or small stalk on which the secondary grain is borne often supplies further evidence in oat variety identification. The rachilla of a variety may be described as long, medium or short, coarse or fine, and pubescent or glabrous. While there is considerable variation within a variety in rachilla characters, yet from observations connected with this study, it is evident that there is justification in using these characters quite freely in identifying varieties.

It must be pointed out after reviewing the characters used in the following descriptions, that it is only through the combined use of many characters that a satisfactory grouping of varieties can be made or the identity of a variety be established.

It will be noticed that certain characters have not been mentioned in the above descriptions nor in the variety descriptions that follow. Notably among these are colour of foliage and glaucousness. In the opinion of the author the value of these characters for identification work with the common cultivated varieties of oats in Canada is very questionable, since it has been observed that environment is responsible for the expression of these characters in no small degree.

Other characters have not been mentioned because they are common only to varieties belonging to other types, groups or species.

BANNER

Banner was introduced into Canada from the United States. Nothing definite is known regarding the actual origin of this variety, but according to Professor C. A. Zavitz, late Prof. of Field Husbandry of the Ontario Agricultural College, Guelph, Ont., it was introduced by the Ontario Agricultural College, Guelph, in 1886, from James Vick and Sons of Rochester, N.Y.

Banner belongs to the mid-season group in maturity, and possesses practically all of the desirable economic characters commonly looked for in a good oat variety at Ottawa. In percentage of kernel, Banner averages around 70 to 72 per cent under normal conditions. It is exceptionally well adapted to a wide range of soil and climatic conditions but does not, in so far as is known, possess any particular disease resistance.

Description

Early Growth.—Erect, leaves normal green.

Maturity.—Medium, usually at least 10 days later than Alaska and approximately the same maturity as Victory.

Straw—

Height—mid-tall (average 43·1 inches. Range 53·3 to 33 inches)[1].
Size—medium.
Strength—medium strong (average 8·6)[3].
Pubescence at upper nodes—slight to medium.
Colour—normal green at heading, normal straw yellow at maturity.

Foliage—

Quantity—medium abundant.
Colour—normal green before heading.
Leaf width—medium.
Pubescence—usually glabrous.

Banner

Panicle—

Shape—equilateral, medium spreading.
Size—medium.
Rachis—usually erect.
Branches—medium length, mostly ascending except possibly at full maturity.
Spikelets—usually 2 flowered, semi-pendulous.
Glumes—outer glume mostly with 9 or 10 veins, average length and width 20·3 x 6·32 m.m. (Ratio 3·21:1).

Grain—

Shape—medium width, medium long, pointed, average length and width 16·43 x 2·75 m.m. (Ratio 5·97:1).
Basal hairs—traces often present.
Crease—slightly shallow to full, medium width.

Lemma—

Colour—creamy white.
Awns—few to numerous, varying from weak to medium strong, usually slightly twisted at base and occasionally slightly bent.
Number of veins—mostly 7.

Rachilla—

Length—medium, averaging 2·39 m.m.
Pubescence—mostly glabrous, often with slight trace of fine hairs.

VICTORY

Victory oats originated by the Swedish Seed Association of Svalöf, Sweden, is a pedigreed selection out of Milton, an old mixed variety of Probstier type, with somewhat shorter, plumper grain than the original Probstier. It was introduced into Canada for testing in 1911 and quickly proved to be well adapted to Canadian conditions. It possesses many desirable economic characters such as good yielding ability, fairly strong straw and good weight per bushel. The kernel percentage of Victory on the average is approximately the same as Banner. Victory is a mid-season variety in maturity, and on account of its rather short, broad grain, makes an excellent exhibition oat. Like Banner this variety does not possess any special disease resistance.

Description

Early Growth.—Erect, leaves normal green.

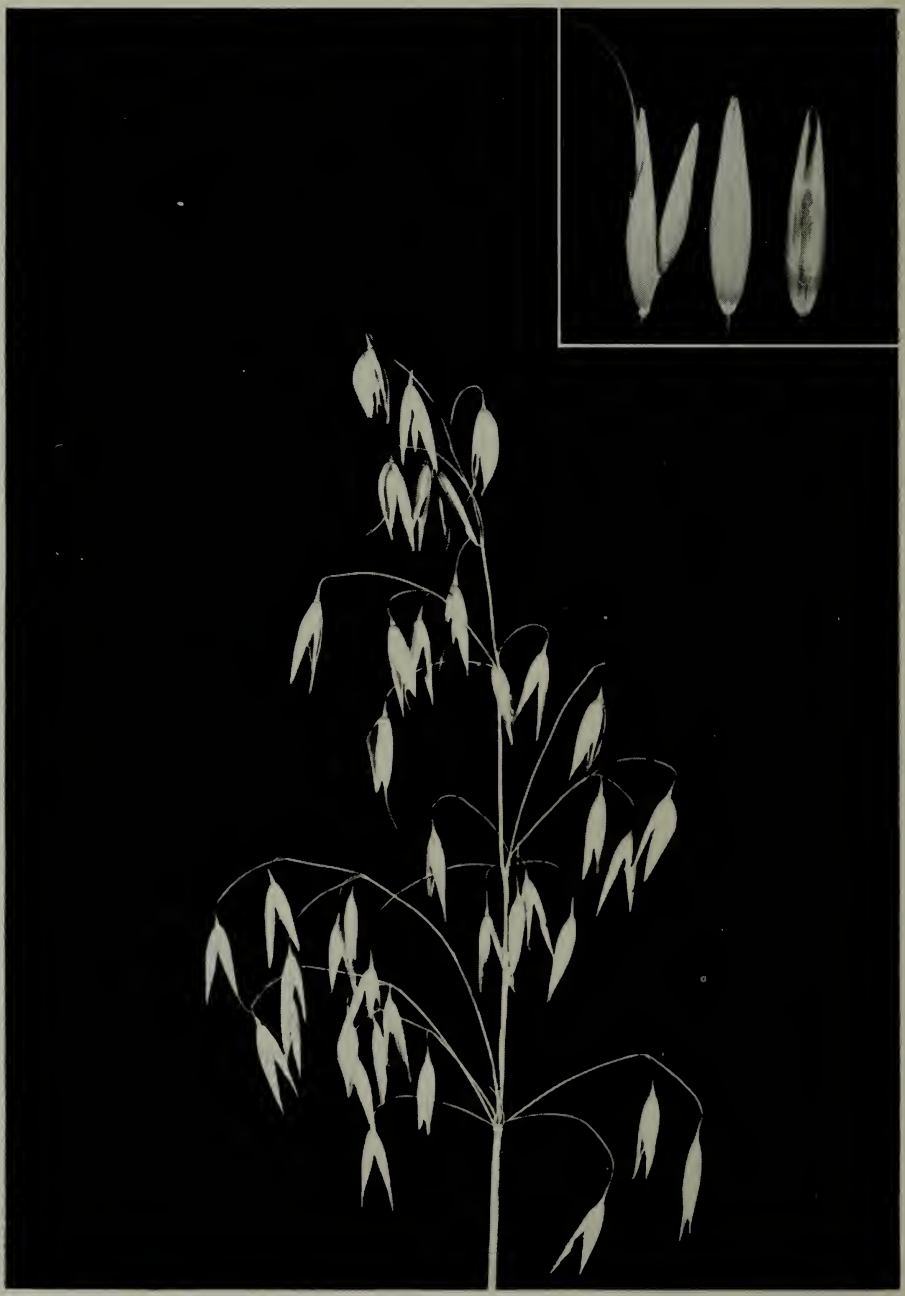
Maturity.—Medium, about the same maturity as Banner.

Straw—

Height—mid-tall. (Average 43·5 inches. Range 52 to 34 inches)[1]. Banner averaging 43 inches.
Size—medium.
Strength—medium strong. (Average 8·7)[3]. Banner averaging 8·6.
Pubescence at upper nodes—traces to medium.
Colour—normal green at heading, normal straw yellow at maturity.

Foliage—

Quantity—medium abundant.
Colour—normal green before heading.
Leaf width—medium.
Pubescence—usually glabrous.



Victory

Panicle—

Shape—equilateral, spreading.
Size—medium.
Rachis—usually slightly drooping near tip at maturity.
Branches—medium length, mostly ascending except possibly at full maturity.
Spikelets—usually 2 flowers, mostly pendulous.
Glumes—outer glumes mostly with 9 or 10 veins, average length—width 19·4 x 6·28 m.m. (Ratio 3·08:1).

Grain—

Shape—medium width to wide, medium short, slightly blunt tip, average length—width 15·24 x 2·92 m.m. (Ratio 5·21:1).
Basal hairs—usually absent.
Crease—medium wide, usually full, with slight transverse depression.

Lemma—

Colour—creamy white.
Awns—few, usually fairly weak, often slightly twisted and darkened at base but seldom bent.
Number of veins—mostly 7, often 8 or 9.

Rachilla—

Length—medium short, averaging 2·12 m.m.
Pubescence—mostly glabrous, traces occasionally present.

ALASKA

The Alaska oat was imported from the United States by the Ontario Agricultural College, Guelph, Ont., in 1900. This variety is classed as early, and while not particularly widely adapted to soils and climate, it is of excellent quality. The yield is usually somewhat lower than the best of our later varieties, but in view of its thin hull, the actual yield of kernel is relatively high. The percentage kernel in comparison with Banner is very high, averaging nearly 80 per cent at Ottawa over a period of eleven years.

From work done at Macdonald College in disease resistance, results have shown that Alaska carries considerably less infection than Banner both from loose or naked as well as covered smut. Alaska also has shown less stem rust infection in Eastern Canada than Banner.

Description

Early Growth.—Erect, slightly more upright than Banner, leaves normal green.

Maturity.—Early, usually at least 10 days earlier than Banner.

Straw—

Height—mid-tall. (Average 42 inches, range 53 to 32 inches)[1]. Banner averaging 43 inches.
Size—medium.
Strength—medium strong to strong. (Average 9·7)[3]. Banner averaging 8·6.
Pubescence at upper nodes—trace to medium.
Colour—normal green at heading, normal straw yellow at maturity.

Foliage—

Quantity—somewhat less abundant than Banner.
Colour—normal green at heading.
Leaf width—medium, slightly narrower than Banner.
Pubescence—mostly glabrous, occasional trace near base of blades.

Alaska

Panicle—

Shape—equilateral, widely spreading.
Size—medium.
Rachis—often slightly drooping.
Branches—medium length, mostly drooping at maturity.
Spikelets—usually 2 flowered, semi-pendulous.
Glumes—outer glume mostly with 8 or 9 veins, average length—width 20·36 x 5·75 mm. (Ratio 3·54:1).

Grain—

Shape—medium width, long, pointed, average length—width 17·26 x 2·72 mm. (Ratio 6·34:1).
Basal hairs—traces usually present.
Crease—usually full and of medium width.

Lemma—

Colour—creamy white.
Awns—few to numerous, varying from weak to medium, often slightly twisted but not usually bent.
Number of veins—mostly 7.

Rachilla—

Length—medium long, averaging 2·74 mm.
Pubescence—usually trace present.

O.A.C. 72

This variety was produced by the Ontario Agricultural College, Guelph, Ont., and introduced in 1911. It is a selection out of Siberian, a variety introduced from Russia.

O.A.C. 72 is a mid-season variety, ripening approximately at the same time as Banner (a little later at Ottawa), and according to Professor C. A. Zavitz, is better adapted to soils that are not overly fertile.

This variety resembles Banner in many of its economic qualities and when well adapted, will produce a more attractive sample. In percentage kernel, the O.A.C. 72 variety can be classed with Banner.

No special resistance to disease is reported for O.A.C. 72 from the Ontario Agricultural College or elsewhere.

Description

Early Growth.—Erect, leaves normal green.

Maturity.—Medium, approximately the same maturity as Banner.

Straw—

Height—medium tall, slightly taller than Banner which averages 43 inches. (Average 46·4 inches, range 34 to 60 inches)[1].
Size—medium.
Strength—medium strong. (Average 8·4)[3]. Banner averaging 8·6.
Pubescence at upper nodes—medium.
Colour—normal green at heading, normal straw yellow at maturity.

Foliage—

Quantity—medium abundant.
Colour—normal green before heading.
Leaf width—medium broad.
Pubescence—glabrous.

O.A.C. 72

Panicle—

Shape—equilateral, spreading.
Size—medium.
Rachis—usually erect.
Branches—medium length, mostly ascending except at full maturity.
Spikelets—usually 2 flowered, semi-pendulous.
Glumes—outer glumes mostly with 9 or 10 veins, average length—width 22·2 x 6·6 mm. (Ratio 3·36:1).

Grain—

Shape—medium long, pointed, plump, medium width, average length—width 16·83 x 2·74 mm. (Ratio 6·14:1).
Basal hairs—traces usually present.
Crease—medium width, usually full.

Lemma—

Colour—creamy white.
Awns—usually numerous, mostly medium strong, often slightly twisted but seldom bent.
Number of veins—mostly 8 or 9, more commonly 9.

Rachilla—

Length—medium short, averaging 2·27 mm.
Pubescence—usually absent.

O.A.C. 144

O.A.C. 144 is an awnless selection out of O.A.C. 72, made at the Ontario Agricultural College, Guelph, Ont. This variety was distributed to the farmers of Ontario in 1923. It is a few days later than O.A.C. 72, has a little longer and stronger straw and is more adaptable to a somewhat richer soil than the latter variety on account of its greater strength of straw.

The O.A.C. 144 variety compares favourably with Banner in kernel percentage and when well adapted usually yields somewhat better.

It has been found at the Ontario Agricultural College that O.A.C. 144 is highly resistant to the oat smuts. No special resistance to other diseases has been observed.

Description

Early Growth.—Erect, leaves normal green.

Maturity.—Medium, often a few days later than Banner.

Straw—

Height—tall, usually several inches taller than Banner which averages 43 inches. (Average 47·3 inches, range 41 to 51·9 inches)[2].
Size—medium, slightly larger than Banner.
Strength—medium strong. (Average of 8·6)[2] [3]. Banner averaging 8·6.
Pubescence at upper nodes—medium to heavy.
Colour—normal green at heading, yellow with pinkish tinge at maturity.

Foliage—

Quantity—medium abundant.
Colour—normal green before heading.
Leaf width—broad.
Pubescence—short hairs on margin of leaves near base of blades.

O.A.C. 144

Panicle—

Shape—equilateral, widely spreading.
Size—medium large.
Rachis—mostly erect.
Branches—rather long, ascending slightly, widely spreading.
Spikelets—usually 2 flowered, semi-pendulous.
Glumes—outer glumes mostly with 9 or 10 veins, average length—width 20·2 x 6·54 mm. (Ratio 3·08:1) glumes usually with slight pinkish tinge.

Grain—

Shape—long, pointed, medium width to wide, average length—width 17·4 x 2·78 mm. (Ratio 6·25:1).
Basal hairs—present, usually medium length to short.
Crease—medium width, slightly shallow to full.

Lemma—

Colour—creamy white with pinkish tinge towards tip.
Awns—practically awnless.
Number of veins—mostly 7, often 8 or 9.

Rachilla—

Length—medium long, averaging 2·74 mm.
Pubescence—usually few short hairs present.

O.A.C. 3

This variety was originated at the Ontario Agricultural College, Guelph, Ont., and is the result of a selection out of Daubeney made in 1904. O.A.C. 3 is early, and ripens along with Alaska. It is a little shorter in the straw than Alaska and quite strong. O.A.C. 3 is an excellent quality oat, although carrying a slightly thicker hull than Alaska. This variety appears to have no particular resistance to the common diseases of oats.

Description

Early Growth.—Erect, leaves normal green.
Maturity.—Early, usually from 7 to 10 days earlier than Banner.
Straw—

Height—short to mid-tall. (Average 35·5 inches, range 31 to 42 inches)[2]. Banner averaging 43 inches.
Size—rather small.
Strength—medium strong. (Average 7·8)[2 3]. Banner averaging 8·6.
Pubescence at upper nodes—glabrous.
Colour—normal green at heading, normal straw yellow at maturity.

Foliage—

Quantity—somewhat less abundant than Banner.
Colour—normal green before heading.
Leaf width—narrow.
Pubescence—glabrous.

Panicle—

Shape—equilateral, rather narrow, spreading.
Size—usually slightly smaller than Banner.
Rachis—slightly drooping.
Branches—medium length, rather shorter than Banner, mostly drooping at maturity.
Spikelets—usually 2 flowered, pendulous.
Glumes—outer glumes mostly with 8 or 9 veins, average length—width 20·2 x 5·65 mm. (Ratio 3·57:1).

O.A.C. 3

Grain—

Shape—medium long, pointed, rather narrower than Banner, average length—width 16·57 x 2·45 mm. (Ratio 6·76:1).
Basal hairs—present, usually short.
Crease—medium width, usually full.

Lemma—

Colour—creamy white.
Awns—practically awnless.
Number of veins—mostly 7.

Rachilla—

Length—medium, averaging 2·46 mm.
Pubescence—absent, occasional traces.

ABUNDANCE

This variety is a product of Messrs. Gartons Ltd., of England, the result of a cross between White August and White Swedish. It is a mid-season variety of fairly good quality. Abundance has compared favourably with other good varieties of this group, although the straw is a little coarser than Banner and the tillering capacity is often rather sparce, particularly on the lighter soils. This variety does not apparently possess as wide adaptability as does Banner.

In percentage kernel, Abundance averages approximately the same as Banner and Victory. It is quite susceptible to the smuts of oats and apparently is not resistant to any of the other common diseases.

Description

Early Growth.—Erect, leaves normal green.

Maturity.—Medium, about the same maturity as Banner.

Straw—

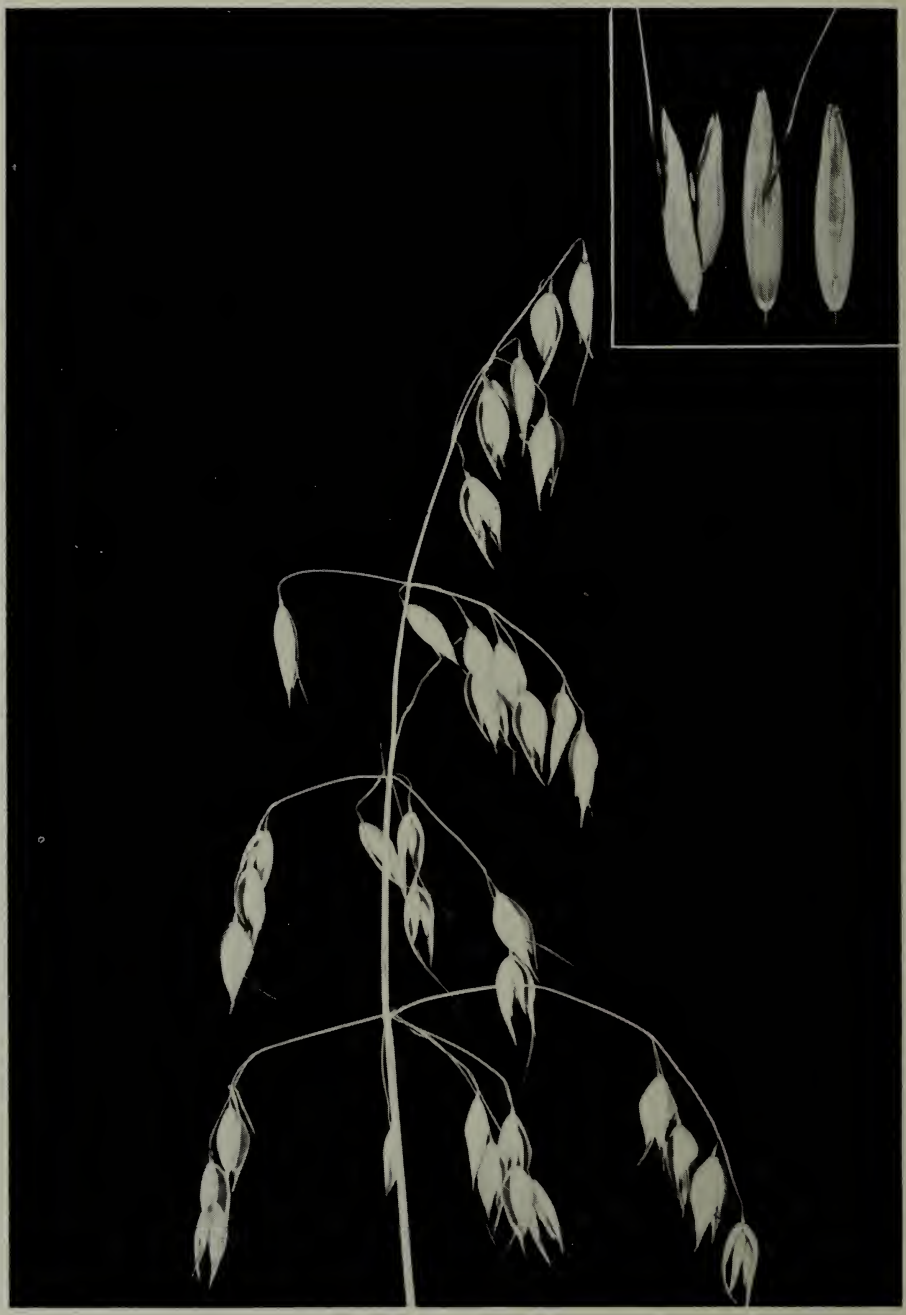
Height—mid-tall. (Average 40·7 inches, range 38 to 44 inches)[2]. Banner averaging 43 inches.
Size—medium, somewhat coarser than Banner.
Strength—medium strong, slightly weaker than Banner. (Average 7·6)[2 3]. Banner averaging 8·6.
Pubescence at upper nodes—medium to heavy.
Colour—normal green at heading, normal straw colour at maturity.

Foliage—

Quantity—medium abundant.
Colour—normal green before heading.
Leaf width—medium, slightly wider than Banner.
Pubescence—glabrous.

Panicle—

Shape—equilateral, widely spreading.
Size—medium.
Rachis—usually erect, often slightly drooping.
Branches—medium length, mostly at right angles to rachis or drooping at full maturity.
Spikelets—usually 2 flowered, pendulous.
Glumes—outer glumes mostly with 9 or 10 veins, somewhat coarser than Banner; average length—width 20·7 x 7·09 mm. (Ratio 2·91:1).



Abundance

Grain—

Shape—medium length, slightly shorter and wider than Banner, average length—width 15·66 x 2·97 mm. (Ratio 5·27:1).

Basal hairs—traces usually present.

Crease—slightly shallow to full, usually with slight depression, medium width.

Lemma—

Colour—creamy white.

Awns—usually numerous, medium strong, darkened at base, slightly twisted and often slightly bent.

Number of veins—mostly 7, occasionally 8 or 9 under abnormal conditions.

Rachilla—

Length—medium, averaging 2·37 mm.

Pubescence—glabrous.

GOLD RAIN

This variety is of Swedish origin and according to Professor H. Nilsson of the Svalöf Plant Breeding Institution, is a sister sort of Victory and thus a pedigree selection out of Milton, an old mixed variety of Probstier type, but with shorter and plumper seeds than the old Probstier. It was introduced into Canada in 1911 by Mr. L. H. Newman, then Secretary of the Canadian Seed Growers' Association.

Gold Rain is a yellow oat, a few days earlier than Banner and is apparently fairly widely adapted to Canadian soils and climatic conditions. This variety has good quality, being thinner in the hull than either Banner or Victory. The straw is usually of fairly fine quality.

Gold Rain is susceptible to both crown and stem rust and does not possess noticeable resistance to the oat smuts.

Description

Early Growth.—Erect, leaves normal green.

Maturity.—Medium, a few days earlier than Banner.

Straw—

Height—mid-tall. (Average 44·5 inches, range 53 to 32 inches)[1]. Banner averaging 43 inches.

Size—medium.

Strength—medium strong. (Average 8·9)[3]. Banner averaging 8·6.

Pubescence at upper nodes—light to medium.

Colour—normal green at heading, normal straw yellow at maturity.

Foliage—

Quantity—medium abundant.

Colour—normal green before heading.

Leaf width—medium.

Pubescence—glabrous.

Panicle—

Shape—equilateral, medium spreading.

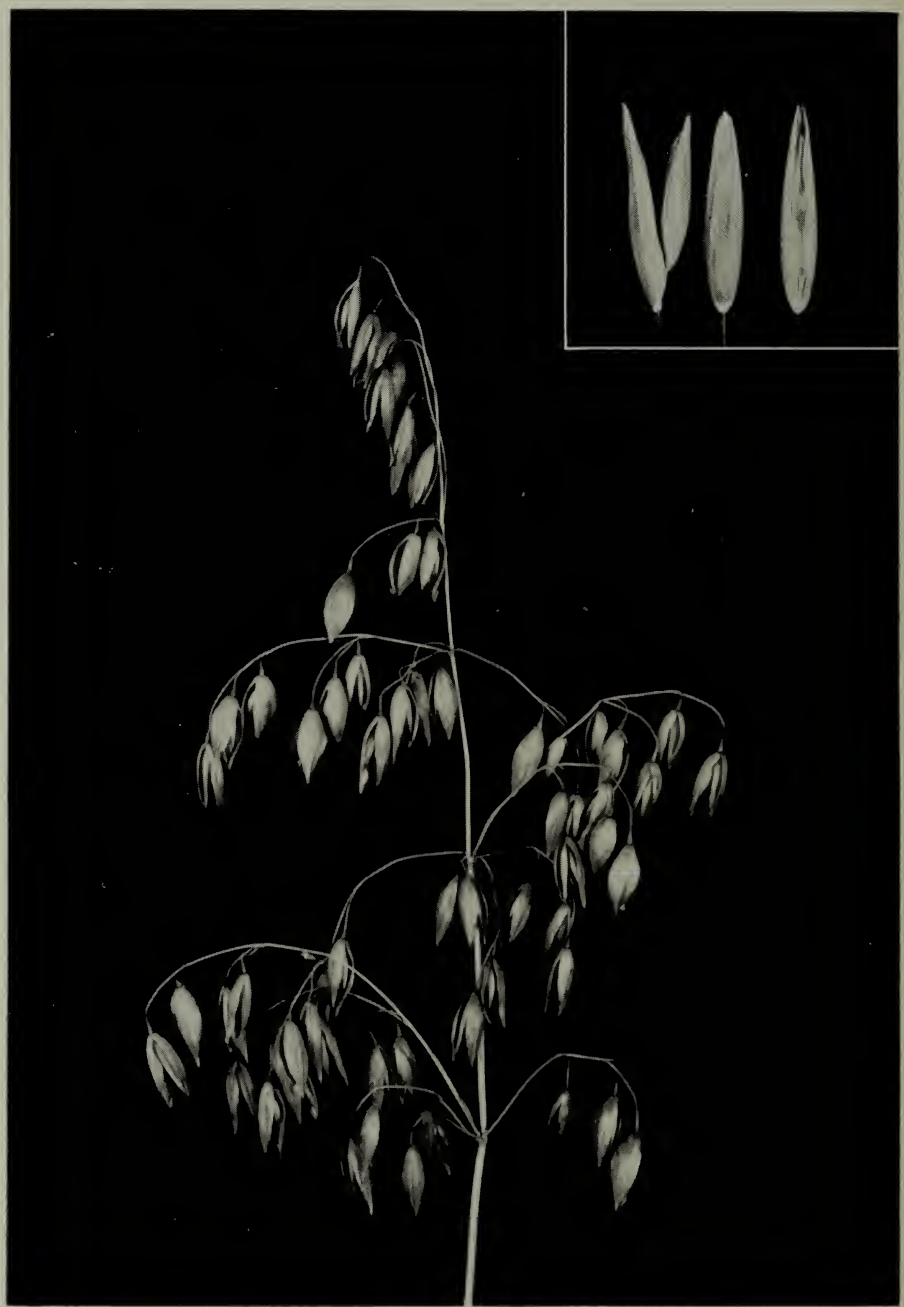
Size—medium.

Rachis—usually erect.

Branches—medium length, mostly ascending except at full maturity.

Spikelets—usually 2 flowered, pendulous.

Glumes—outer glume mostly with 9 or 10 veins, average length—width 17·89 x 6·15 mm. (Ratio 2·90:1).



Gold Rain

Grain—

Shape—short, medium width, blunt tip, average length—width 14·2 .. 2·58 mm. (Ratio 5·50:1).
Basal hairs—traces usually present.
Crease—slightly shallow to full, medium width to wide.

Lemma—

Colour—yellow.
Awns—practically awnless.
Number of veins—mostly 7.

Rachilla—

Length—medium short, averaging 2·30 mm.
Pubescence—traces often present.

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[1] Ten year average at Ottawa.
[2] Five year average at Ottawa.
[3] Based on a scale of 1-10 points.

CONCLUSION

In the foregoing descriptions it will be observed that many of the characters vary so widely that their practical value for identification purposes is rather limited. It is also true that certain varietal characters are practically identical and therefore valueless in so far as concerns variety identification. It has been the object of this work, however, to make these descriptions as comprehensive as possible, recognizing at the same time, their limitations. It is also recognized that their value for the purpose intended will be measured very largely by the knowledge one has of the range of variation that is possible in respect to a given character.

In order to facilitate a ready comparison of varietal characteristics the main characters used are tabulated below.

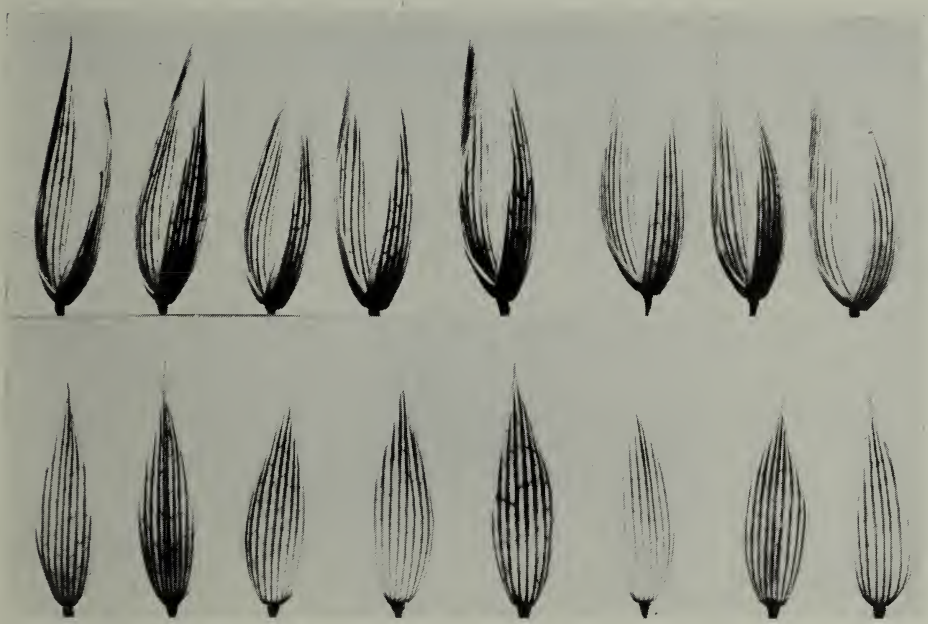
In the plates that follow an effort has been made to show the distinctive differences in shape of grain, spikelet and glumes of the eight registered oat varieties herein described.

TABULATION OF CHARACTERS AS AN AID IN IDENTIFYING THE REGISTERED OAT VARIETIES

Varieties	Maturity	Leaf pubescence	Node pubescence	Lemma		Awns	Grain		Glumes		Panicle shape	Rachilla		Basal hairs
				Colour	Number of veins		Length-width ratio	Shape of tip	Length-width ratio	Number of veins		Length	Pubescence	
Banner	Mid-season	Glabrous	Pubescent	White	Mostly 7	Present, weak to medium	5·97:1	Pointed	3·21:1	9 or 10	Medium spreading	Medium	Absent	Traces often present
O.A.C. 72	Mid-season	Glabrous	Pubescent	White	7, 8 or 9	Present, medium strong	6·14:1	Pointed	3·36:1	9 or 10	Medium spreading	Medium short	Absent	Traces often present
Victory	Mid-season	Glabrous	Pubescent	White	7, 8 or 9	Present, mostly weak	5·21:1	Slightly blunt	3·08:1	9 or 10	Medium spreading	Medium short	Absent	Absent
Abundance	Mid-season	Glabrous	Pubescent	White	7, 8 or 9	Present, medium strong	5·27:1	Slightly blunt	2·91:1	9 or 10	Widely spreading	Medium	Traces often present	Traces often present
O.A.C. 144	Mid-season to late	Pubescent	Pubescent	Pinkish White	7, 8 or 9	Absent	6·25:1	Long pointed	3·08:1	9 or 10	Widely spreading	Medium long	Traces often present	Present
Gold Rain	Mid-season	Glabrous	Pubescent	Yellow	Mostly 7	Absent	5·50:1	Blunt	2.90:1	9 or 10	Medium spreading	Medium	Traces often present	Traces often present
Alaska	Early	Glabrous	Pubescent	White	Mostly 7	Present, mostly weak	6·34:1	Pointed	3·54:1	8 or 9	Medium to widely spreading	Medium long	Traces often present	Traces often present
O.A.C. 3	Early	Glabrous	Glabrous	White	Mostly 7	Absent	6·76:1	Pointed	3·57:1	8 or 9	Medium spreading, narrow	Medium	Absent	Present

Three views of spikelets and primary grains of eight registered oat varieties (magnified about 2½ times). Left to right: Banner, Victory, O.A.C. 144, O.A.C. 72, Abundance, Alaska, O.A.C. 3, and Gold Rain. Note: Awns have been removed in the two lower rows.

Typical spikelets and grains of eight registered oat varieties.



Two views of glumes of eight registered oat varieties, the lower row showing primary glumes. Left to right: O.A.C. 3, Alaska, Gold Rain, O.A.C. 72, O.A.C. 144, Banner, Victory and Abundance.

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The Ontario Agricultural College at Guelph has collaborated in the description of the O.A.C. No. 72, O.A.C. No. 144 and O.A.C. No. 3 varieties and Macdonald College in the description of the Alaska and Banner varieties.

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