No. 7300039

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Kentucky Agricultural Experiment Station

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF seventeen YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. IN THE UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS CLASS OF CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS CIFIED BY THE OWNER OF THE RIGHTS. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

WATERMELON

'Kengarden'

In Testimony Whereof, *I have hereunto set my hand and caused the seal of the* Plant Variety Protection Office *to be affixed at the City of* Washington *this* fifth *day of* April *in the year of our Lord one thousand nine hundred and* seventy-six

Attest:

Commissioner
Plant Variety Protection Office
Grain Division
Agricultural Marketing Service

Secretary of Agriculture

FORM GR-470
(2-12-71)

UNITED STATES DEPARTMENT OF AGRICULTURE
CONSUMER AND MARKETING SERVICE
GRAIN DIVISION
HYATTSVILLE, MARYLAND 20782

FORM APPROVED
OMB NO. 40-R3712

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

INSTRUCTIONS: *See Reverse.*

1. VARIETY NAME OR TEMPORARY DESIGNATION KENGARDEN ~~Double Dwarf Variety (Temporary)~~	2. KIND NAME Watermelon	FOR OFFICIAL USE ONLY PVPO NUMBER 23039
3. GENUS AND SPECIES NAME Citrullis Lanatus (formerly C. Vulgaris)	4. FAMILY NAME *(Botanical)* Cucurbitaceae 5. DATE OF DETERMINATION 1970	FILING DATE 12-14-72 TIME 11:00 A.M. FEE RECEIVED $250 CHARGES —
6. NAME OF APPLICANT(S) Kentucky Agricultural Experiment Station, employer of Hubert C. Mohr, breeder	7. ADDRESS *(Street and No. or R.F.D. No., City, State, and ZIP Code)* Agricultural Science Center University of Kentucky Lexington, Kentucky 40506	8. TELEPHONE AREA CODE AND NUMBER 606-257-4772
9. IF THE NAMED APPLICANT IS NOT A PERSON, FORM OF ORGANIZATION: *(Corporation, partnership, association, etc.)* Government Agency	10. STATE OF INCORPORATION	11. DATE OF INCORPORATION

12. Name and mailing address of applicant representative(s), if any, to serve in this application and receive all papers:

Dr. Hubert C. Mohr
Department of Horticulture
University of Kentucky
Lexington, Kentucky 40506

13. CHECK BOX BELOW FOR EACH ATTACHMENT SUBMITTED:

- [X] 12A. Exhibit A, Origin and Breeding History of the Variety *(See Section 52, P.L. 91-577)*
- [X] 12B. Exhibit B, Botanical Description of the Variety
- [X] 12C. Exhibit C, Objective Description of the Variety
- [X] 12D. Exhibit D, Data Indicative of Novelty
- [ ] 12E. Exhibit E, Statement of the Basis of Applicant's Ownership See Field 6 Above

The applicant declares that a viable sample of basic seed of this variety will be deposited upon request before issuance of a certificate and will be replenished periodically in accordance with such regulations as may be applicable. *(See Section 52, P.L. 91-577).*

14A. Does the applicant(s) specify that seed of this variety be sold by variety name only as a class of certified seed? *(See Section 83(a), P.L. 91-577) (If "Yes," answer 14B and 14C below.)* [X] YES [ ] NO

14B. Does the applicant(s) specify that this variety be limited as to number of generations? [ ] YES [X] NO

14C. If "Yes," to 14B, how many generations of production beyond breeder seed?

Applicant is informed that false representation herein can jeopardize protection and result in penalties.

The undersigned applicant(s) of this sexually-reproduced novel plant variety believes that the variety is distinct, uniform, and stable as required in Section 41 and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act (P.L. 91-577).

11/30/72 (DATE) — Charles E. Barnhart, Director (SIGNATURE OF APPLICANT)

11-20-72 (DATE) — Hubert C. Mohr, Breeder (SIGNATURE OF APPLICANT)

RECEIVED
DEC 14 1972
U. S. DEPARTMENT OF AGRICULTURE
AMS, GRAIN DIV.
PVPO

INSTRUCTIONS

GENERAL: Send an original copy of the application, exhibits and $50.00 fee to U.S. Dept. of Agriculture, Consumer and Marketing Service, Grain Division, Hyattsville, Maryland 20782. Retain one copy for your files. All items on the face of the form are self-explanatory unles noted below.

ITEM

5 Insert the date the applicant determined that he had a new variety.

12a First, give the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method. Second, give the details of subsequent stages of selection and multiplication. Third, indicate the type and frequency of variants during reproduction and multiplication and state how these variants may be identified. Fourth, provide evidence on stability.

12b First, give any special characteristics of the seed and of the plant as it passes through the seedling stage, flowering stage and the fruiting stage. Second, describe the mature plant and compare it with a similar commercial variety grown under the same conditions, and indicate the differences.

12c A supplemental form will be furnished by the PVPO to describe in detail a variety for each kind of seed.

12d Provide complete data indicative of novelty. Seed and plant specimens may be submitted and seeds submitted may be sterile. Where possible, include photographs of plant comparisons, chemical tests, etc.

12e Indicate whether applicant is the actual breeder, the employer of the breeder, the owner through purchase or inheritance, etc.

Exhibit A

12 A. Origin and Breeding History of the Variety (Double-Dwarf Type) Watermelon

First: The origin of the double dwarf type is from the cross of a short-internode line designated as W-45 (derived from a single plant mutation of this type located in the variety Desert King in Texas by H. C. Mohr in 1953[1] and a short-internode line designated as "Bush type Asahi-Yamato", obtained from Dr. M. Shimotsuma of the Kihara Institute for Biological Research in Japan in 1962[2]. This cross was made in 1962.

The F_1 generation grown in 1963 produced only typical vine type plants, although both parents were of restricted plant growth (short-internodes).

In 1964 the F_2 generation was grown and produced a ratio of 9 vines: 3 Texas type: 3 Japanese type: 1 "double dwarf". This ratio indicates that the double dwarf is produced when the recessive gene for Texas type short-internode and the recessive gene for Japanese type short-internode are both present in the homozygous condition. No self pollinations were attempted in 1964 since the analysis of the morphological characteristic was not completed until after the growing season.

Second: In 1965 the F_2 generation was again grown with the intention of selfing the double dwarf segregants to establish lines homozygous for the two recessive genes controlling the characteristic. However it was discovered that the double dwarfs were so late in producing pistillate flowers that no seed was matured before frost. Unless earlier maturity could be combined with the double dwarf characteristic it was virtually valueless.

In 1966 an outcross to the variety New Hampshire Midget was made to introduce genes for earlier maturity into the double dwarf.

In 1967 the F_1 of this cross was selfed and in 1968 it was possible to mature seed of double dwarf segregants before frost.

By 1970 maturity, while still not classed as early, was satisfactory for Kentucky and areas of similar growing season. Self pollinations of double dwarf selections in 1970 produced seed for 21 different lines to be evaluated in 1971. The primary concern in the 1971 evaluation of lines was melon quality, since plant type and maturity were now acceptably uniform. Within the 21 lines a number of selections were made. However, one line showed a quite satisfactory level of uniformity in melon quality factors and appeared to be variable only with respect to seed size and color in 1971. The amount of variability in regard to these two characters was not great and it seems likely that one or two generations of selfing and selecting in this line (now underway) will establish a variety of sufficient uniformity for release by 1973.

It is expected that this variety will be only the first in a series of varieties of this double dwarf type. Specific varieties for specific situations will meet needs of home gardeners, commercial producers (particularly under irrigation), areas requiring resistance to diseases, etc.

Third: Variants occur as the result of cross pollination with vine types. (Seed must be produced with sufficient isolation to eliminate or reduce this to a minimum.) Only vines will result from seed produced by pollination with vine pollen. If these vines are allowed to produce seed, there will be some Japanese and some Texas type dwarfs in the following crop.

Fourth: Stability of our double dwarf lines has been verified by observation of such lines from 1969 to the present.

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[1]Leaflet L-397, Texas Agricultural Experiment Station. 1958.

[2]Personal correspondence, Dr. M. Shimotsuma. January 10, 1962.

Exhibit B

12B. Botanical Description of the Variety

Kengarden is a midseason, small fruited (12 lbs.) watermelon of dwarf plant habit with multiple crown branching, and leaves lacking the indentations (lobing) characteristic of the species. Seeds are brown, 7 mm x 4 mm, produced in average numbers. Young seedlings have hypocotyls that are only 1.5 inches long (vine types are 3.0 inches) so require shallow planting. Mature plant is 3' in diameter.

Young seedlings are compact, due to very short internodes, which makes them ideal for transplants. Flowering habit is monoecious, with staminate buds "open" (petals not clasping to close the bud).

Fruit is spherical with light green rind covered with darker green netting. Flesh color is dark pink, texture fine, soluable solids 11 to 12%. Quality rated as excellent.

Kengarden is susceptible to fusarium wilt and anthracnose. It is recommended for home gardens.

SOURCE OF SEED

Foundation seed of Bush Desert King were released in the spring of 1957 to certified seed growers for increase. Seed should be available in limited quantity to the public for 1958 planting from this increase. Seed will not be available to commercial growers or gardeners from the Texas Agricultural Experiment Station.

* * * * *

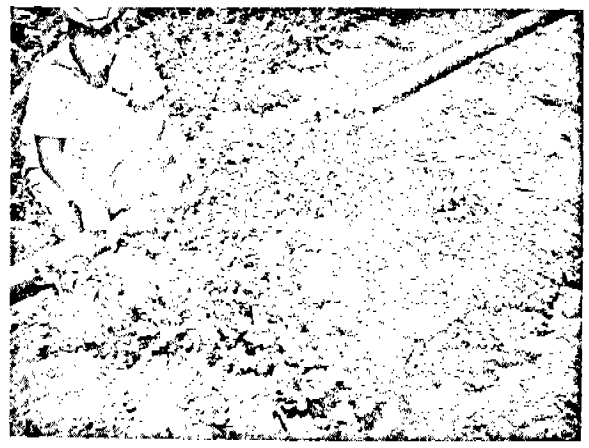
This is only one of a number of new or improved varieties or hybrids developed by the Texas Agricultural Experiment Station. Similar leaflets are published when seed of the new variety or hybrid become available.

L-397 April 1958

Bush Desert King

WATERMELON

A new variety requiring much less growing area



Fully grown bush watermelon plant. Note melon size.

- COMPACT PLANT OCCUPIES LITTLE SPACE AND IS EASY TO CULTIVATE, DUST OR SPRAY
- PRODUCES HIGH QUALITY, YELLOW-FLESHED MELONS
- MELONS ARE 20 TO 35 POUNDS IN SIZE
- DENSE FOLIAGE PROTECTS MELONS FROM SUNBURN AND CROW DAMAGE
- SHORT, RIGID STEM MAKES PLANT LESS SUBJECT TO DAMAGE BY STRONG WINDS

TEXAS AGRICULTURAL EXPERIMENT STATION

R. D. Lewis, Director, College Station, Texas

BUSH DESERT KING

The Bush Desert King watermelon will occupy little more space in the home garden than a squash or cucumber plant, and will provide the gardner with several 20 to 35-pound, fine quality melons per plant under normal growing conditions.

Where markets accept yellow-fleshed watermelons, the Bush Desert King may be valuable for commercial growers. The closer spacing which can be used should result in larger yields per acre.

ORIGIN AND DEVELOPMENT

Bush Desert King is a selection from a mutation in the Desert King variety which was discovered in a Texas Agricultural Experiment Station watermelon trial near Nacogdoches in 1953. Genetic studies with the mutation were made at College Station, and the mode of inheritance of the "bush" characteristic was found to be monofactorial recessive. The present line is homozygous ("fixed") for this character, and it apparently is nearly identical in other traits with the parent Desert King variety.

The term "bush," as used in the name, may be misleading. The plant is not as upright in growth as a typical bush. Because of their weight, the melons lie on the ground as with vine types.

DESCRIPTION

Plants have much shortened internodes and thickened, rigid stems. The mature plants occupy an area approximately 6 feet in diameter under conditions where standard vine types require areas 20 feet or more in diameter.

Melons are typical of the Desert King variety, with pale yellow skin and flesh color, flesh texture fine and melting, sugar content high and flavor excellent.

Seed of Bush Desert King are smaller than those of the parent variety and have a deformity which gives them a distinctive "hooked" appearance. These seed germinate as well as normal seed, but the seedlings require several days longer than usual to emerge. Leaves are typically dark green and frequently have more lobes than standard varieties.

Bush Desert King is not known to be resistant to any watermelon diseases or insects, and should be dusted or sprayed with a combination of a fungicide and an insecticide. See Extension Service Leaflet 261, "Guide for Controlling Insects on Vegetable Crops in Texas," for recommended insecticides and rates of application. While the dense foliage of Bush Desert King provides more favorable conditions for foilage diseases to develop, the compact upright growth facilitates application of chemical dusts or sprays for their control.

ADAPTATION

Bush Desert King has done well in tests at several locations throughout Texas. It has not been tested extensively outside the State, and recommendations for other areas are not made at this time. Inasmuch as Bush Desert King is a late-maturing variety, it probably would not be suitable for areas with a short growing season.

KIHARA INSTITUTE FOR BIOLOGICAL RESEARCH
MUTSUKAWA, MINAMI-KU, YOKOHAMA
JAPAN

10th Jan., 1962

Dr. H. C. Mohr
Texas Agricultural Exp. Sta.
College Station
Texas
U. S. A.

Dear Dr. Mohr

Thank you very much for your kindness in sending me the leaflet which appeared the new watermelon variety "Bush Desert King". This variety is very interesting because it has a characteristic of short internode.

I have heard from Dr. K. W. Johnson, Dept. of Hort., Purdue Univ. Lafayette, Indiana, that you are working on short internode types for fresh market and home garden.

One of our group, Mr. K. Ara, Toyama Agric. Exp. Sta., Tonami, Toyama Prefecture, discovered bush type line from mutation in the "Asahi-Yamato" variety in 1959. This line is homozygous for the character and it apparently is nearly identical in other trials with the parent "Asahi-Yamato" variety. The mode of inheritance of the bush characteristic was found to be monofactorial recessive. I have pleasure in forwarded herewith a few seeds of this line.

I am sincerely interested in the breeding work with watermelons in your country and getting some work arrangement between your group and us with regards to the exchange of plant materials and publications. Anything that I can do to facilitate this matter will be done most promptly. Thnak you.

Sincerely yours,

M. Shimotsuma

M. Shimotsuma
Kihara Institute for
Biological Research
Mutsukawa, Minami-Ku
Yokohama, Japan.

8

KIHARA INSTITUTE FOR BIOLOGICAL RESEARCH
MUTSUKAWA, MINAMI-KU, YOKOHAMA
JAPAN

1-10-62

2x-watermelons

1. Midget watermelon: (Sweet Siberian x Urimi) x New Hampshire Midget
   Pale green rind, striped, yellow flesh, 3 lbs, thin rind, oval, Fus. resist.

2. Ginrei---- Green rind, round, 2 lbs, yellow flesh, early mature, excellent quality, Fus. resist.

3. Kinrei---- Orange rind, round, 2 lbs, yellow flesh, excellent quality, Fus. resist.

4. Korei---- Orange rind, round, 2 lbs, red flesh, excellent quality, Fus. resist.

* 5. Kichijo---- Green rind, striped, round, 12 lbs, red flesh, excellent quality, Fus. resist.

** 6. Eisei---- Green rind, non-striped, round, red flesh, 12 lbs, excellent quality, high Fus. resist. oval?

7. Otome---- Light green rind, non-striped, oval, 8 lbs, thin and explosive rind, red flesh, excellent quality, early mature.

8. Cleam No.2---- Light green rind, striped, 12 lbs, yellow flesh, good shipping melons, excellent quality, Fus. resist.

* 9. Miyako No.3---- Green rind, striped, round, red flesh, 15 lbs, good shipping melons, low sugar, Fus. resist.

10. Bush type "Asahi-Yamato"---- green rind, non-striped, red flesh, 12 lbs, round, Fus. susceptible, short internode.

3x-watermelons

11. Koyo: (Fumin(4x) x Asahi-Yamato(4x)) x Miyako No.1(2x).
    Green rind, striped, red flesh, excellent quality, 13 lbs, non-hollow heart, late mature, Fus. resist.

12. Kyokuto: Asahi-Yamato(4x) x Miyako No.3(2x)
    Green rind, striped, red flesh, excellent quality, 10 lbs, late mature, Fus. resist.

13. Fuken: Fumin(4x) x Asahi-Yamato(2x)
    Green rind, non-striped, red flesh, excellent quality, non-hollow heart, 12 lbs, late mature, Fus. resist.

14. Cleam: Ogon(4x) x Cleam No.2(2x)
    Green rind, striped, yellow flesh, 15 lbs, very few ovules, excellent taste and internal quality.

Exhibit B

12B. Botanical Description of the Variety

First:

Seeds of the double recessive dwarf appear identical to those of existing vine varieties. Seed size and color differ by variety, but all are within the range existing in common commercial varieties. However the seed should not be planted as deep in the soil as seed of the vine type because the hypocotyl is quite short (ave. length 1.5 inches as contrasted to over 3 inches in vine varieties).

The growth of young seedlings appears to be slow because of the short internodes. Actually this very compact type of growth is ideal for the production of transplants. These can be produced commercially by bedding plant producers, since they remain in a marketable condition for several weeks whereas plants of vine varieties grow out of marketable condition in a few days. Such transplants have proved to be entirely satisfactory for field setting with the mechanical transplanting machines used to set out tobacco, tomatoes, cabbage, etc.

As the plant passes the seedling stage the stem developes numerous major branches (usually 4 to 6) from the crown of the plant. These in turn become branched. (See Figure No. 3). At this stage the branches are generally upright in growth rather than procumbent. Individual branches are generally within the range of 10 to 20 inches in length and the diameter of the plant is within the range of 18 inches to three feet.

Breeding lines that are under development fall into two categories with respect to leaf type. First is the typical watermelon leaf which is distinctly pinnately lobed, with the lobes again further lobed and toothed. Secondly is the non-lobed leaf which is described by Mohr, et al[1]. It is expected that varieties will be released from each of these two groups.

Flowers are either staminate or pistillate, exhibiting the usual monoecious condition of the species. The "open bud" condition described by Mohr[2] is present in all present double dwarf breeding lines and is believed to be a pleiotropic effect of the gene for short-internode in the Texas type.

During the fruiting stage the plant produces pistillate flowers simultaneously (or nearly so) on all major branches. This tends to result in a concentrated "setting" of fruit of one stage of maturity. Breeding lines are being developed with various shapes and sizes of fruit, all within the range existing in present vine varieties.

Second:

The mature plant of the double dwarf type has a spread (diameter) of approximately 3 feet, in contrast to vine varieties most of which are 15 to 25 feet in diameter.

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[1]Mohr, H. C., H. T. Blackhurst and E. R. Jensen. 1955. F_1 Hybrid Watermelons from Open-pollinated seed by use of a Genetic Marker. Proc. Amer. Soc. Hort. Sci. 65:399-404.

[2]Mohr, H. C. 1963. Utilization of the Genetic Character for Short-Internode in Improvement of the Watermelon. Proc. Amer. Soc. Hort. Sci. 82:454-459.

Exhibit D

12 D. Data Indicative of Novelty

The internode lengths of lines of the Bush Desert King type fall within the range of 2.5 to 4.0 centimeters, whereas those of the Bush Asahi-Yamato are generally within the range of 3.5 to 5 centimeters. The internodes of the Double Dwarf average 1 centimeter in length. In contrast the internodes on vine plants are usually approximately 12 to 15 centimeters in length. The figures given are from plants grown under the same environment. (Observation indicates that environment may modify the actual length of internodes, and also the relative internode size between vines and various dwarf lines).

The branching habit of the Double Dwarf type is inherited from the Bush Asahi-Yamato parent. It may be described as a rosette type of branching, with all primary branches arising nearly simultaneously from the crown of the plant. In contrast varieties of the vine type usually have a system of branches that are derived from one primary branch, which branches and rebranches throughout the life of the plant.

The range in length of the hypocotyls on twenty-five Double Dwarf seedlings grown in the greenhouse was 2 to 6.2 centimeters with the mean length being 3.75 cm., whereas twenty-five vine seedlings of the same age had a range in hypocotyl lengths of 6.2 to 10.0 centimeters and a mean hypocotyl length of 7.6 cm.

It is recognized that there are marked differences between different varieties of the vine type with respect to mature plant size. Most commercial varieties will have a plant spread of 15 to 25 feet at maturity, and even those varieties recommended primarily

for home gardens seldom are smaller than 12 feet in diameter at maturity. In contrast plants of the most vigorous Double Dwarf lines do not exceed 4 1/2 feet in diameter at maturity, and some lines with mature plant spread of only 2 1/2 feet are being stabilized. The value of such restricted vegetative growth to the home gardener is obvious. To the commercial grower who must use furrow irrigation, such a plant type saves the labor necessary to "train" the plants on top of the bed (keep them out of the irrigation furrow). The improved efficiency in production usually associated with high density planting is another advantage which may prove to be associated with the Double Dwarf. This type of plant also appears to be more promising than the vine for eventual adaptation to mechanized harvesting.

Figures 1, 2 and 3 afford a comparison of the two parental lines with the Double Dwarf. Emphasis in the photographs is placed on illustrating the type of branching, since this resulted in a substantial increase in potential fruit bearing area over that of the Bush Desert King parent. Figure 3 also shows that the internodes of the Double Dwarf are much shorter than those of either parent, which is the primary cause of the much smaller mature plant size of the Double Dwarf.

Exhibit D Application No. 73039

12D Data Indicative of Novelty

Kengarden most closely resembles Bush Desert King (now obsolete). Kengarden can be clearly distinguished from Bush Desert King by leaf type. Leaves of Kengarden are not indented (lobed) as are typical watermelon leaves, whereas leaves of Bush Desert King are.

Internode lengths on Bush Desert King are in the range of 2.5 to 4.0 centimeters, whereas internodes of Kengarden are only 1 centimeter in length.

Flesh color of Bush Desert King melons is yellow, whereas flesh color of Kengarden melons is dark pink.

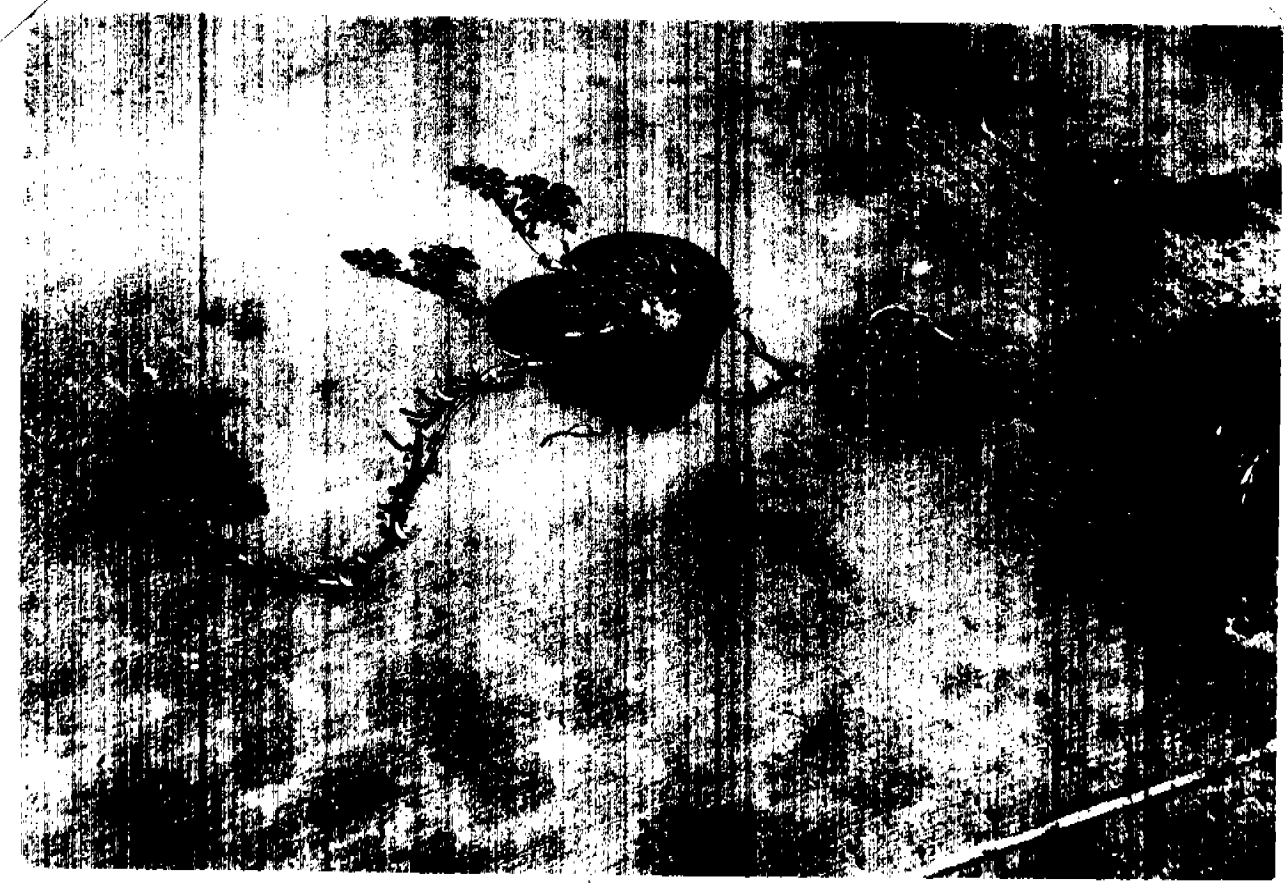

Figure 1. Plant of line derived from Bush Desert King. The gene for short internode in Bush Desert King is strongly linked with genes responsible for limited branching (usually not more than three branches.) The long stems are thick, brittle and distorted ("twisted"). Leaves have been removed to clarify the illustration.

FORM GR-470-19
(1-15-73)

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
GRAIN DIVISION
HYATTSVILLE, MARYLAND 20782

EXHIBIT C
(Watermelon)

OBJECTIVE DESCRIPTION OF VARIETY
WATERMELON *(CITRULLUS LANATUS)*

INSTRUCTIONS: *See Reverse.*

NAME OF APPLICANT(S)
Dr. H. C. Mohr

ADDRESS *(Street and No. or R.F.D. No., City, State, and ZIP Code)*
Agriculture Experiment Station
University of Kentucky
Lexington, KY 40506

FOR OFFICIAL USE ONLY
PVPO NUMBER
73039
VARIETY NAME OR TEMPORARY DESIGNATION
KENGARDEN
~~Double Dwarf Variety~~

Place the appropriate number that describes the varietal character of this variety in the boxes below.
Place a zero in first box (e.g. [0][8][9] or [0][9]) when number is either 99 or less or 9 or less.

1. TYPE:

[3] 1 = OBLONG 2 = ROUND LARGE 3 = ROUND SMALL *(icebox)*

2. AREA OF BEST ADAPTATION:

[4] 1 = SOUTH 2 = NORTHEAST/NORTHCENTRAL 3 = SOUTHWEST 4 = MOST AREAS

3. EMERGENCE TO ANTHESIS:

[ ][ ] NO. OF DAYS *EARLIER* THAN ..... [ ] } 1 = CHARLESTON GREY
[0][6] NO. OF DAYS *LATER* THAN ..... [1] } 2 = OTHER *(Specify)* _____

4. POLLINATION TO MATURITY:

[0][0] NO. OF DAYS *EARLIER* THAN ..... [1] } 1 = CHARLESTON GREY
SAME
[0][0] NO. OF DAYS *LATER* THAN ..... [1] } 2 = OTHER *(Specify)* _____

5. PLOIDY:

[1] 1 = DIPLOID 2 = TETRAPLOID 3 = TRIPLOID

6. PLANT

[1] Cotyledon: 1 = FLAT 2 = FOLDED [1] 1 = MONOECIOUS 2 = ANDROMONOECIOUS

Number of flowers per plant at first fruit set:

[1][0] STAMINATE [0][1] PISTILLATE [0][0] PERFECT [4] NO. OF MAIN STEMS AT CROWN

7. STEM:

[1] 1 = ROUND 2 = ANGULAR [1][0] MM. DIAMETER AT SECOND NODE

[3] 1 = GLABROUS 2 = SCABROUS 3 = PUBESCENT 4 = BRISTLED

[0][2] CM. VINE LENGTH ÷ NO. OF INTERNODES *(At last harvest)*

8. LEAF:

[1] 1 = OVATE 2 = OBOVATE 3 = ROUND [1] 1 = LONGER THAN WIDE 2 = LENGTH-WIDTH EQUAL 3 = WIDER THAN LONG

[1] Dorsal Surface: } 1 = SMOOTH 2 = PUBESCENT
[2] Ventral Surface: }

[4] Color: 1 = LIGHT GREEN 2 = GRAY GREEN 3 = MEDIUM GREEN 4 = DARK GREEN

9. FLOWER *(At first fruit set):*

[0][3] Staminate: CM. ACROSS [0][2] Perfect: CM. ACROSS [2] Color: 1 = LEMON YELLOW 2 = YELLOW 3 = ORANGE

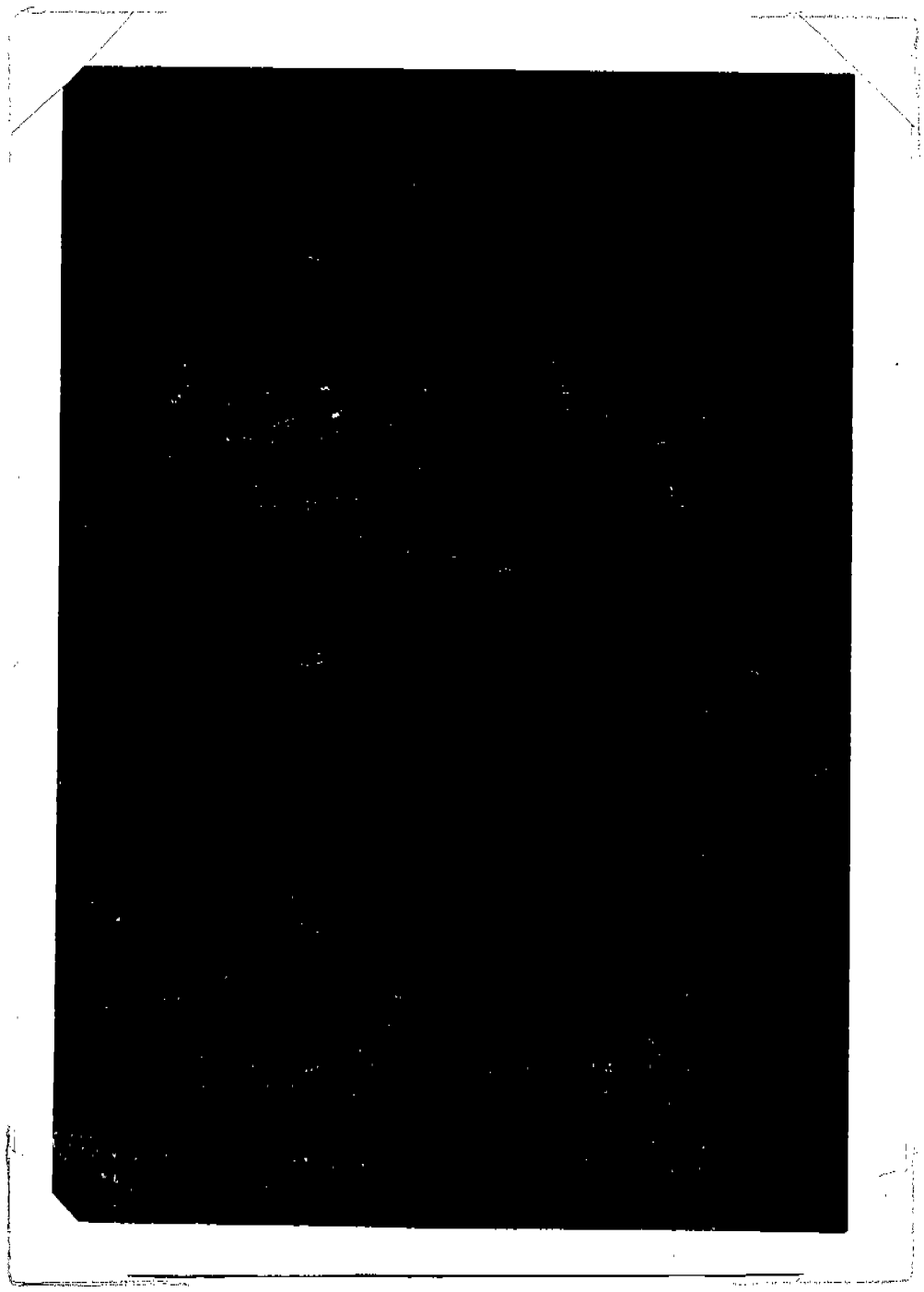

Figure 2. Plant of Bush Asahi-Yamato. Internodes are not as short as those in Bush Desert King, but the branching is excellent (usually six or more branches). Stems are not thick, brittle and distorted as in Bush Desert King. Leaves have been removed to clarify the illustration.

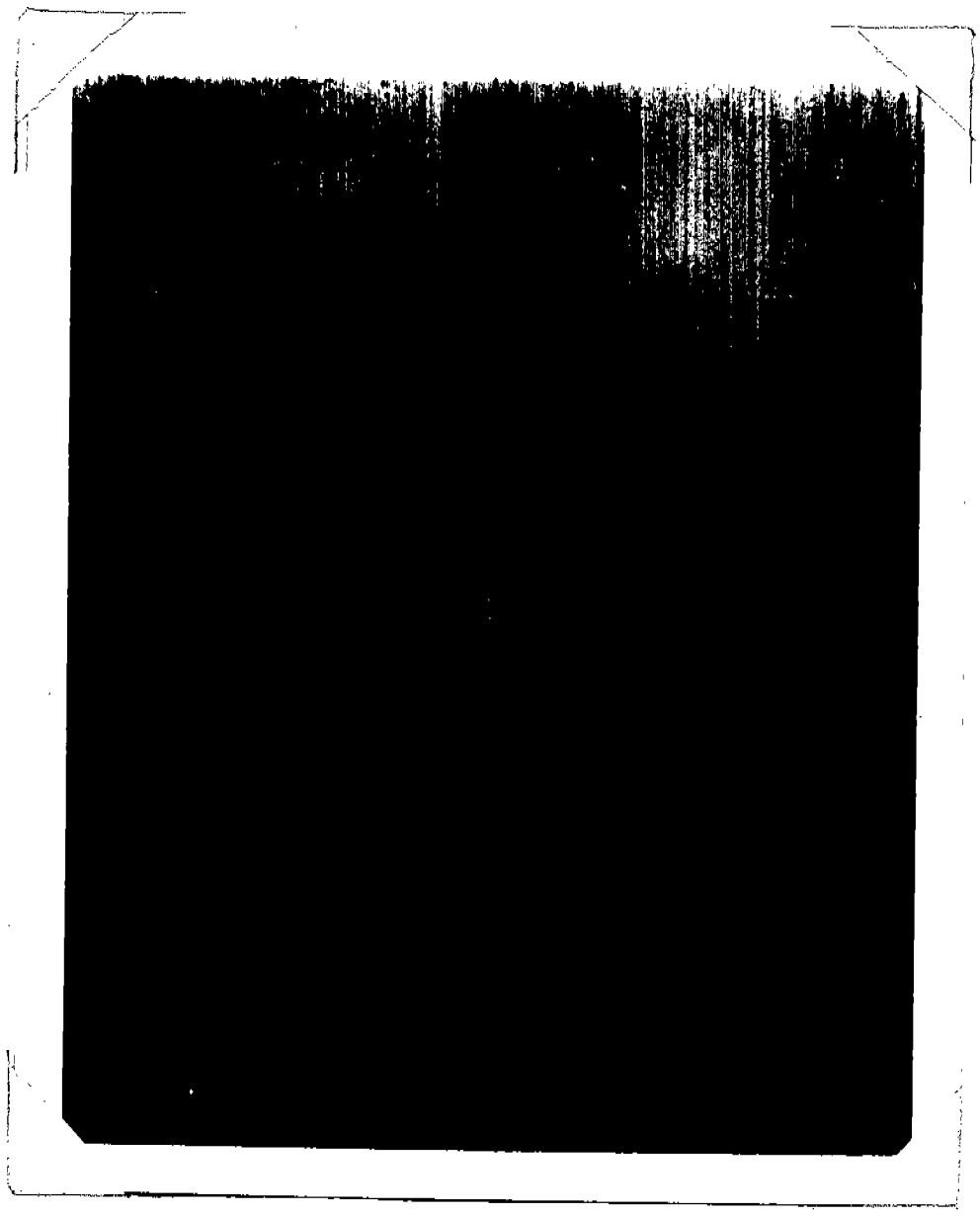

Figure 3. Plant of ~~the Double Dwarf type~~ KENGARDEN derived from the cross of a line of Bush Desert King type with Bush Asahi-Yamato. The very short internodes (shorter than on either parent) have been combined with the numerous short branches typical of Bush Asahi-Yamato. Leaves have been removed to clarify the illustration.

Exhibit E:

Application No. 73039
Watermelon - 'Kengarden'

The Kentucky Agricultural Experiment Station is the employer of Hubert C. Mohr, breeder of Kengarden watermelon, and owns all rights pertaining to this variety.

Hubert C. Mohr

73039

FORM GR-470-19 (REVERSE)

10. MATURE FRUIT:

[1] 1 = ROUND 2 = OVAL 3 = CYLINDRICAL

[20] CM. LONG [20] CM. DIAMETER AT MIDSECTION

[06] KG. AVERAGE WEIGHT

[10] INDEX = LENGTH ÷ DIAMETER X 10

[1] 1 = SMOOTH 2 = SLIGHTLY GROOVED 3 = DEEPLY GROOVED

[3] Color: 1 = SOLID *(One color)* 2 = STRIPE 3 = MOTTLE/NET

[2] Primary Color: 1 = YELLOW GREEN *(Desert King)* 2 = LIGHT GREEN *(Charleston Gray)* 3 = MEDIUM GREEN *(Sugar Baby)*

[3] Secondary Color: 4 = DARK GREEN *(Florida Giant)* 5 = OTHER *(Specify)* _____

11. RIND:

[3] 1 = TENDER 2 = BRITTLE 3 = TOUGH

[10] THICKNESS MM. BLOSSOM END

[10] THICKNESS MM. SIDES

12. FLESH:

[1] 1 = CRISP 2 = SOFT

[2] 1 = COARSE-FIBROUS 2 = FINE-LITTLE FIBER

[3] Color: 1 = YELLOW 2 = ORANGE 3 = PINK 4 = RED 5 = DARK RED

[11] REFRACTOMETER % SOLUBLE SOLIDS OF JUICE *(Center of fruit)*

[09] % CHECK VARIETY *(Specify)* CHARLESTON GRAY

[000] % HOLLOW HEART

[000] % PLACENTAL SEPARATION

[000] % TRANSVERSE CRACK

13. SEED:

[08] MM. LONG

[05] MM. WIDE

[02] MM. THICK

[16] INDEX = LENGTH ÷ WIDTH X 10

[25] GM. PER 1000 SEED

[340] NO. SEED PER FRUIT

[08] Color: 1 = WHITE 2 = WHITE-TAN TIPPED 3 = WHITE-PINK TIPPED 4 = TAN 5 = GREEN 6 = RED 7 = DARK BROWN 8 = DARK BROWN MOTTLED 9 = BLACK 10 = MOTTLED BLACK

14. DISEASE RESISTANCE: (0 = Untested, 1 = Susceptible, 2 = Resistant)

[1] ANTHRACNOSE *(Race_____)*

[0] DOWNY MILDEW

[1] FUSARIUM WILT

[0] GUMMY STEM BLIGHT

[0] SQUASH MOSAIC

[0] WATERMELON MOSAIC

[2] POWDERY MILDEW

[0] CUCUMBER MOSAIC

[0] OTHER *(Specify)* _____

15. OTHER RESISTANCE: (0 = Untested, 1 = Susceptible, 2 = Resistant)

[2] SUNBURN

[0] ROOT KNOT

[0] OTHER *(Specify)* _____

16. NAME A VARIETY THAT MOST CLOSELY RESEMBLES THAT SUBMITTED:

Days maturity	CHARLESTON GRAY	Fruit shape	SUGAR BABY
Plant vigor	" "	Rind color	CHARLESTON GRAY
Fruit Size	SUGAR BABY	Flesh quality	SUGAR BABY

REFERENCES:

1. Frey, K. J. 1966. Plant Breeding - Symposium. 1 ed. Iowa State University Press.
2. Ware, G. W. and McCollum, J. P. 1968. Producing Vegetable Crops. Interstate Printers & Publishers, Inc. Danville, Illinois.
3. Whitaker, T. W. and Davis, G. N. 1962. Cucurbits. Interscience Publishers, Inc. New York.
4. Nickerson's or any recognized color fan should be used to determine the plant colors of the described variety.