



US00PP33414P3

(12) **United States Plant Patent**
MacGregor et al.

(10) **Patent No.:** **US PP33,414 P3**
(45) **Date of Patent:** **Aug. 31, 2021**

(54) **GEUM PLANT NAMED ‘MACGEU004’**

(50) Latin Name: **Geum hybrid**
Varietal Denomination: **MACGEU004**

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(*) Notice: Subject to any disclaimer, the term of this
patent is extended or adjusted under 35
U.S.C. 154(b) by 0 days.

(21) Appl. No.: **16/906,265**

(22) Filed: **Jun. 19, 2020**

(65) **Prior Publication Data**
US 2021/0127538 P1 Apr. 29, 2021

(30) **Foreign Application Priority Data**
Oct. 28, 2019 (QZ) PBR 2019/2733

(51) **Int. Cl.**
A01H 5/02 (2018.01)
A01H 6/74 (2018.01)
A01H 6/14 (2018.01)

(52) **U.S. Cl.**
USPC **Plt./263.1**

CPC **A01H 6/14** (2018.05)
(58) **Field of Classification Search**
USPC Plt./263.1
CPC **A01H 5/02; A01H 5/00; A01H 6/74**
See application file for complete search history.

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(57) **ABSTRACT**

‘MACGEU004’ is a new and distinctive variety of *Geum*
hybrid plant which is characterized by a large plant size,
large dark green leaves, and tall inflorescences bearing large
orange-red flowers. The new variety propagates successfully
by stem cuttings and tissue culture and has shown to be
uniform and stable in the resulting generations from asexual
propagation.

3 Drawing Sheets

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Latin name of the genus and species: The Latin name of
the genus and species of the novel variety disclosed herein
is *Geum* hybrid.

Variety denomination: The inventive variety of *Geum*
hybrid disclosed herein has been given the variety denomi-
nation ‘MACGEU004’.

**CROSS REFERENCE TO RELATED
APPLICATIONS**

This application claims priority to the Community Plant
Variety Rights application number 2019/2733, filed Oct. 28,
2019, which is herein incorporated by reference.

BACKGROUND OF THE INVENTION

Parentage: ‘MACGEU004’ is the result of a controlled
cross-pollination breeding program carried out by the inven-
tors at their commercial nursery in Kirkcudbright, Scotland,
in June of 2010. The inventors performed a controlled
cross-pollination of the emasculated seed parent, *Geum*
chiloense ‘Red Dragon’ (unpatented), with an unnamed
Geum hybrid plant (unpatented), the pollen parent. Said
pollination was performed in an insect proof environment.
Seed from said cross was harvested, then germinated, and
the resulting seedlings were then grown to a mature size in

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a protected poly tunnel greenhouse. In June of 2012, the
inventors selected the new *Geum* cultivar for its unique
flower and bloom characteristics. This new and distinctive
cultivar was given the name ‘MACGEU004’.

Asexual Reproduction: Asexual reproduction of
‘MACGEU004’ was first accomplished in June of 2012 by
way of vegetative division and subsequently by way of
meristematic tissue culture micro propagation at a laboratory
in Rijswijk, the Netherlands. Successive generations have
shown that the unique features of the instant cultivar are
stable and reproduce true to type.

SUMMARY OF THE INVENTION

The cultivar ‘MACGEU004’ has not been observed under
all possible environmental conditions and the phenotype
may vary somewhat with variations in the instant environ-
ment such as temperature, day length, and light intensity,
without, however, any variance in genotype. The following
traits have been repeatedly observed and represent the
distinguishing characteristics of the new *Geum* cultivar,
‘MACGEU004’.

1. *Geum* ‘MACGEU004’ exhibits a large plant size; and
2. *Geum* ‘MACGEU004’ exhibits large, dark green foli-
age; and

3. *Geum* 'MACGEU004' exhibits cyme inflorescences borne on long peduncles; and
4. *Geum* 'MACGEU004' exhibits large orange-red semi-double flowers.

BRIEF DESCRIPTION OF THE FIGURES

FIG. 1 shows, as nearly true as it is reasonably possible to make the same in color illustrations of this type, the typical foliage and growth characteristics of the new cultivar, 'MACGEU004'. The plant shown is approximately 4.5 month old, potted into a 3 liter nursery pot, grown outdoors in Kirkcudbright, Scotland at a commercial nursery.

FIG. 2 shows, as nearly true as it is reasonably possible to make the same in color illustrations of this type, the typical foliage of the plant in FIG. 1.

FIG. 3 shows, as nearly true as it is reasonably possible to make the same in color illustrations of this type, the typical flower of the plant in FIG. 1.

BOTANICAL DESCRIPTION OF THE PLANT

The following is a detailed botanical description of a new and distinct variety of *Geum* known as 'MACGEU004', based upon observations of 4.5 month old plants grown outdoors in Kirkcudbright, Scotland. Plants were grown with full sun to partial shade exposure and subsisted on natural rainfall with supplemental irrigation provided during periods of dry weather. Plants were grown in a nutrient-rich compost but were otherwise not given any supplemental fertilizer. No chemical pest treatments were given to the plants. Observation data was recorded in May of 2020.

Those skilled in the art will appreciate that certain characteristics will vary with older or, conversely, with younger plants. 'MACGEU004' has not been observed under all possible environmental conditions. Where dimensions, sizes, colors and other characteristics are given, it is to be understood that such measurements are approximations or averages set forth as accurately as practicable. The phenotype of the variety may differ from the descriptions set forth herein with variations in environmental, climatic and cultural conditions. Color notations are based on *The Royal Horticultural Society Colour Chart*, The Royal Horticultural Society, London, 2007 edition.

A botanical description of 'MACGEU004' and comparisons with the parents and most similar variety of common knowledge are provided below.

General plant description:

Growth habit.—Herbaceous perennial with no lateral branching, flowering stems arising from the base, and inflorescence held above the foliar plane.

Plant profile.—Globular.

Height.—29.9 cm to the top of the foliar plane; 53.8 cm to the top of the floral plane.

Spread.—66.0 cm.

Plant vigor.—Highly vigorous.

Growth rate.—Moderately fast growing.

Propagation.—Method — Meristematic tissue culture.

Time to initiate rooting — 12 days at an average ambient temperature of 22 degrees Celsius. Time to produce flowering plant from rooted cutting — Approximately 4 months in a 15 cm container; 6 months in a 17 cm container.

Pest resistance and susceptibility.—Not any more or less susceptible to pests or diseases known to effect *Geum*.

Environmental tolerances.—Adapt to, at least, USDA Zones 5 to 9 and temperatures ranging from minus 25 degrees Celsius to 35 degrees Celsius; low to moderate tolerance to rain; moderate to high tolerance to wind.

Root system: Thin, fibrous, and freely branched.

Stem:

Branching habit.—Basally branched; moderately free branching.

Number of primary (main) stems per plant.—15.

Number of secondary (lateral) branches per plant.—None.

Attitude.—Average angle of 40 degrees from vertical; stems vary from between 0 to 80 degrees from vertical.

Aspect.—Rounded.

Length.—40.8 cm.

Diameter.—0.5 cm.

Internode length.—9.1 cm.

Texture.—Densely pubescent; hairs are soft, white RHS N155A, and 1.0 mm long, on average.

Luster.—Slightly glossy.

Strength.—Strong.

Color, juvenile.—Greyed-orange, nearest to RHS 177A.

Color, mature.—Yellow-green, nearest to RHS 144A.

Color at internodes.—Yellow-green, nearest to RHS 144A.

Foliage:

Arrangement.—Leaves are borne both basally and on stems; on stems, arrangement is alternate.

Basal leaves.—Attachment — Petiolate. Division — Simple. Leaf shape — Lyrate. Dimensions — 24.7 cm long, including petiole, and 12.6 cm in width, on average. Leaf attitude — Leaves in an average angle of 50 degrees to the stem. Leaf apex — Abruptly acute. Leaf base — Straight to truncate. Leaf margin — Biserrate. Texture, adaxial and abaxial surfaces — Smooth, pubescent. Pubescence, adaxial and abaxial surfaces — Soft, appressed to strigose hairs with an average length of 0.1 cm; colored a translucent white, nearest to RHS N155A. Luster, adaxial surface — Slightly glossy. Luster, abaxial surface — Matte. Color — Juvenile foliage color, adaxial surface — Green, nearest to RHS 143B. Juvenile foliage color, abaxial surface — Yellow-green, nearest to RHS 146C. Mature leaf color, adaxial surface — Green, nearest to RHS NN137A. Mature leaf color, abaxial surface — Yellow-green, nearest to RHS 147B. Venation — Type — Pinnate. Vein color, adaxial surface — Green, nearest to RHS NN137A. Vein color, abaxial surface — Yellow-green, nearest to RHS 144C. Petiole — Length — 16.0 cm. Diameter — Average of 0.3 cm. Strength — Moderately strong. Texture, adaxial and abaxial surfaces — Densely covered with soft hairs; average length of hairs is 0.1 cm; colored white, RHS N155A. Luster, adaxial and abaxial surfaces — Slightly glossy. Color, adaxial surface — Yellow-green, nearest to RHS 144B. Color, abaxial surface — Yellow-green, nearest to RHS 144B. Stipules — None present.

Leaves borne on the stems.—Quantity — Approximately 12 leaves per stem. Attachment — Petiolate. Division — Simple. Leaf shape — Trilobate; lobes

are cleft to deeply cleft. Lobes — Depth of
sinuses — Deep. Sinus orientation — Divergent.
Dimensions — 9.3 cm long, including petiole, and
7.6 cm in width, on average. Leaf attitude — Leaves
in an average angle of 50 degrees to the stem. Leaf
apex — Narrow acute. Leaf base — Acute. Leaf
margin — Serrate. Texture, adaxial and abaxial sur-
faces — Smooth, pubescent. Pubescence, adaxial
and abaxial surfaces — Soft, appressed to strigose
hairs with an average length of 0.1 cm; colored a
translucent white, nearest to RHS N155A. Luster,
adaxial surface — Slightly glossy. Luster, abaxial
surface — Matte. Color — Juvenile foliage color,
adaxial surface — Green, nearest to RHS 143B.
Juvenile foliage color, abaxial surface — Yellow-
green, nearest to RHS 146C. Mature leaf color,
adaxial surface — Green, nearest to RHS NN137A.
Mature leaf color, abaxial surface — Yellow-green,
nearest to RHS 147B. Venation — Type — Pinnate.
Vein color, adaxial surface — Green, nearest to RHS
NN137A. Vein color, abaxial surface — Yellow-
green, nearest to RHS 144C. Petiole — Length —
1.3 cm. Diameter — 0.3 cm. Strength — Moderately
strong. Texture, adaxial and abaxial surfaces —
Densely covered with soft hairs; average length of
hairs is 0.1 cm; colored white, RHS N155A. Luster,
adaxial and abaxial surfaces — Slightly glossy.
Color, adaxial surface — Yellow-green, nearest to
RHS 144B. Color, abaxial surface — Yellow-green,
nearest to RHS 144B. Stipules — General — Two
leafy stipules present at the base of each leaf.
Shape — Obovate. Length — 3.8 cm. Diameter —
2.1 cm. Apex — Narrow acute. Base — Cuneate.
Margins — Incised. Texture, adaxial and abaxial
surfaces — Densely covered with soft hairs; average
length of hairs is 0.1 cm; colored white, RHS
N155A. Luster, adaxial and abaxial surfaces —
Slightly glossy. Color, adaxial surface — Yellow-
green, nearest to RHS 144B. Color, abaxial surface
Yellow-green, nearest to RHS 144B.

Inflorescence:

Habit.—Compound cyme.

Natural flowering season.—Spring into summer in
Kirkcudbright, Scotland.

Time to flower or response time.—Approximately 9
months.

Dimensions.—22.3 cm high, including peduncle, and
17.9 cm in diameter.

Quantity of inflorescence per plant.—5, on average.

Quantity of flowers per inflorescence.—2, on average.

Quantity of flowers per plant.—10, on average.

Quantity of flower buds per plant.—80, on average.

Quantity of flowers and flower buds per plant.—90, on
average.

Peduncles.—Length — Average of 19.6 cm.
Diameter — Average of 0.4 cm. Angle — Average
angle to stem is 33 degrees. Strength — Moderately
strong to strong. Texture — Smooth and densely
pubescent; hairs are soft with an average length of
0.1 cm; colored white, nearest to RHS 155A.
Luster — Slightly glossy. Color — Yellow-green,
nearest to RHS 144A, with the upper side suffused
with greyed-orange, RHS 166A.

Flower buds:

Shape.—Deltoid.

Length.—1.1 cm.

Diameter.—1.0 cm.

Texture.—Smooth and densely pubescent; hairs are soft
with an average length of 0.1 cm; colored white,
nearest to RHS N155A.

Luster.—Very slightly glossy.

Color.—Greyed-orange, nearest to a mixture of RHS
176A and 177A; the shaded side not exposed to
sunlight is yellow-green, nearest to RHS 145A.

Flower:

Shape, type.—Rotate; semi-double.

Flowering habit.—Freely flowering.

Aspect.—Upright to outward.

Flower longevity on plant.—Approximately ten days.

Persistent or self-cleaning.—Self-cleaning.

Fragrance.—Non-fragrant.

Diameter.—5.9 cm.

Depth.—3.0 cm.

Pedicels.—Length — 5.8 cm. Diameter — 0.2 cm.

Angle — Average angle to peduncle is approxi-
mately 35 degrees. Strength — Moderately strong.

Texture — Smooth and densely pubescent; hairs are
soft with an average length of 0.1 cm; colored white,
nearest to RHS 155A. Luster — Slightly glossy.
Color — Yellow-green, nearest to RHS 144A, with
the upper side suffused with greyed-orange, RHS
166A.

Calyx.—Shape — Rotate. Length — 1.6 cm.

Diameter — 2.4 cm. Sepals — Arrangement —
Rotate; one whorl of sepals which alternate between
broad sepals and narrow sepals. Quantity — 10
unfused sepals; 5 broad sepals and 5 narrow sepals.

Broad sepals — Shape — Deltoid. Dimensions —
1.6 cm long and 0.8 cm wide. Apex — Acute.
Base — Straight. Sepal reflex — Strongly reflexed.
Margin — Entire. Texture and luster, upper
surface — Smooth, glabrous, and very slightly
glossy. Texture and luster, lower surface — Smooth,
moderately covered with soft strigose hairs, and
slightly glossy; hairs are approximately 0.05 cm long
and colored white, nearest to RHS N155A. Color —

When opening, upper surface — Green, nearest to
RHS 143B. When opening, lower surface — Yellow-
green, nearest to RHS 147C. Fully opened, upper
surface — Green, nearest to RHS 143B, and very
lightly suffused with greyed-orange, nearest to RHS
166A. Fully opened, lower surface — Yellow-green,
nearest to RHS 146C. Narrow sepals — Shape —
Lanceolate. Dimensions — 0.5 cm long and 0.125
cm wide. Apex — Acute. Base — Attenuate. Sepal
reflex — Slightly reflexed. Margin — Entire. Texture
and luster, upper surface — Smooth, glabrous, and
very slightly glossy. Texture and luster, lower
surface — Smooth, moderately covered with soft
strigose hairs, and slightly glossy; hairs are approxi-
mately 0.05 cm long and colored white, nearest to
RHS N155A. Color — When opening, upper
surface — Green, nearest to RHS 143B. When
opening, lower surface — Yellow-green, nearest to
RHS 147C. Fully opened, upper surface — Green,
nearest to RHS 143B, and very lightly suffused with
greyed-orange, nearest to RHS 166A. Fully opened,
lower surface — Yellow-green, nearest to RHS
146C.

Petals.—Quantity — 13, on average; varying from 6 to 20 petals. Arrangement — Rotate; arranged in three whorls of unfused petals. Length — 2.5 cm. Width — 2.9 cm. Shape — Reniform. Apex — Broad emarginate. Base — Broad attenuate. Margin — Entire; moderately to highly undulate. Texture, upper surface — Glabrous, moderately velvety and matte. Texture, lower surface — Glabrous, very slightly rugose, and very slightly glossy. Petal color — When opening, upper surface — Orange-red, nearest to RHS 32A, and fading darker towards the apex, nearest to RHS 34A. When opening, lower surface — Orange-red, nearest to RHS 34C, and becoming red towards the apex, nearest to RHS 39A. Fully opened, upper surface — Orange-red, nearest to RHS 32A, and fading darker towards the apex, nearest to RHS 34A. Fully opened, lower surface — Orange-red, nearest to RHS 34C, and becoming red towards the apex, nearest to RHS 39A. When faded, upper surface — Orange-red, nearest to RHS N34B, and fading lighter towards the base, nearest to RHS N30B. When faded, upper surface — Orange-red, nearest to RHS 31B, and fading darker towards the apex, nearest to RHS N34D. Petal venation color — Fully opened, upper surface — Orange-red, nearest to RHS 32A, and fading darker towards the apex, nearest to RHS 34A. Fully opened, lower surface — Orange-red; nearest to RHS N34C.

Reproductive organs:

Androecium.—Stamens — Quantity — Approximately 100. Anthers — Attachment — Dorsifixed. Shape — Oblong. Dimensions — 0.1 cm long and 0.03 cm wide. Color — Yellow-orange, nearest to RHS 22A. Filaments — Length — 0.4 cm. Color — Yellow-orange, nearest to RHS 20B. Amount of Pollen — Sparse. Pollen color — Yellow-orange, nearest to RHS 22A.

Gynoecium.—Pistil — Quantity — 160, on average. Length — 0.4 cm. Style — Length — 0.45 cm. Color — Orange, RHS 24A, and fading lighter towards the base, nearest to RHS 24C. Stigma — Shape — Cleft; two-parted. Length — 0.05 cm. Diameter — 0.05 cm. Color — Red, RHS 53A. Ovary Color — Green, RHS 138A.

Seed and fruit: No fruit or seeds have been detected to date.

COMPARISONS WITH THE PARENT PLANTS

Plants of the new cultivar ‘MACGEU004’ differ from its seed parent, *Geum chiloense* ‘Red Dragon’ (not patented), by the characteristics described in Table 1.

TABLE 1

Characteristic	‘MACGEU004’	‘Red Dragon’
Plant vigor.	More vigorous than ‘Red Dragon’.	Less vigorous than ‘MACGEU004’.
General coloration of the flower.	Orange-red.	Dark red.
Bloom period.	Longer than ‘Red Dragon’.	Shorter than ‘MACGEU004’.

Plants of the new cultivar ‘MACGEU004’ may be distinguished from its pollen parent, an unnamed *Geum* hybrid plant (not patented), by the characteristics described in Table 2.1

TABLE 2

Characteristic	‘MACGEU004’	The pollen parent
Plant height.	Taller than the pollen parent.	Shorter than ‘MACGEU004’.
General coloration of the flower.	Orange-red.	Red.
Bloom period.	Longer than the pollen parent.	Shorter than ‘MACGEU004’.

COMPARISON WITH THE MOST SIMILAR VARIETY OF COMMON KNOWLEDGE

Plants of the new cultivar ‘MACGEU004’ may be distinguished from the most similar known commercial comparator, *Geum* ‘MACGEU001’ (U.S. Plant Pat. No. 28,476), by the characteristics described in Table 3.

TABLE 3

Characteristic	‘MACGEU004’	‘MACGEU001’
Plant size.	Larger than ‘MACGEU001’.	Smaller than ‘MACGEU004’.
Foliage size.	Larger than ‘MACGEU001’.	Smaller than ‘MACGEU004’.
General coloration of the mature foliage.	A darker shade of green compared to ‘MACGEU001’.	A lighter shade of green compared to ‘MACGEU004’.
Flower size.	Larger than ‘MACGEU001’.	Smaller than ‘MACGEU004’.
General coloration of the flower.	Orange-red, generally appearing more towards an orange coloration by comparison to ‘MACGEU001’.	Orange-red, generally appearing more towards a red coloration by comparison to ‘MACGEU004’.

That which is claimed is:

1. A new and distinct variety of *Geum* hybrid plant named ‘MACGEU004’, substantially as described and illustrated herein.

* * * * *

FIG. 1



FIG. 2



FIG. 3

