US00PP28336P3

(12) **United States Plant Patent**
Hunter

(10) **Patent No.: US PP28,336 P3**
(45) **Date of Patent: Aug. 29, 2017**

(54) **PEAR TREE NAMED 'HW624'**

(50) Latin Name: ***Pyrus communis***
Varietal Denomination: **HW624**

(71) Applicant: **Her Majesty the Queen in Right of Canada, as represented by the Minister of Agriculture & Agri-Food**, Ottawa (CA)

(72) Inventor: **David M. Hunter**, St. Catharines (CA)

(73) Assignee: **Agriculture and Agri-Food Canada**, Ottawa (CA)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 283 days.

(21) Appl. No.: **14/545,134**

(22) Filed: **Mar. 31, 2015**

(65) **Prior Publication Data**

US 2016/0295760 P1 Oct. 6, 2016

(51) **Int. Cl.**
A01H 5/08 (2006.01)

(52) **U.S. Cl.**
USPC **Plt./176**

(58) **Field of Classification Search**
USPC Plt./176
CPC A01H 5/0881
See application file for complete search history.

(56) **References Cited**

PUBLICATIONS

http://www.virtualorchard.net/idfta/cft/1999/april/hunter/08%20Hunter.pdf; Feb. 20-24, 1999; 6 pages.*
Canadian Plant Breeder's Rights Registration Certificate No. 4402 granted Sep. 6, 2012 for 'HW624' *Pyrus communis* variety.

* cited by examiner

Primary Examiner — Kent L Bell
(74) *Attorney, Agent, or Firm* — Brunet & Co.; Hans Koenig

(57) **ABSTRACT**

The invention is a new and distinct pear tree variety denominated 'HW624'. The new pear tree is characterized by producing heavy crops of medium-to large-sized fruit, picked about 2 weeks after 'Bartlett'. Fruits are green when harvested, turning yellow as fruits ripen, and there is a medium red blush where exposed to the sun. There were no natural fire blight infections on the seedling tree, and results from controlled inoculations indicate a high level of resistance to fire blight. The tree is also highly resistant to pear psylla.

2 Drawing Sheets

Latin name of the genus and species of the plant claimed: *Pyrus communis*.

Variety denomination: 'HW624'.

BACKGROUND OF THE INVENTION

The new and distinct pear tree described and claimed herein originated from a controlled cross between 'Harrow Sweet' and 'NY10353' made in 1988 in Harrow, Ontario. Pedigree of 'HW624' is shown in FIG. **1**.

'HW624' was selected as a hybrid seedling ('H8806-1') in 1995 and propagated by budding on pear seedling rootstocks. Trees were planted in an evaluation orchard in 1999 in Jordan Station, Ontario. This selection was advanced and tested in regional trials beginning in 2000.

'HW624' is harvested two weeks after 'Bartlett', whereas 'Harrow Sweet' is harvested three and a half weeks after 'Bartlett' and 'NY10353' is harvested one week before 'Bartlett'. 'HW624' has medium to large size fruit, whereas 'Harrow Sweet' also has medium to large size fruit and 'NY10353' has small, plump spindle shaped fruit. 'HW624' fruit is yellow with a Red Blush at maturity, whereas 'Harrow Sweet' fruit is yellow at maturity. 'HW624' has a high level of resistance to fire blight and psylla, whereas 'Harrow Sweet' has good resistance to fire blight and 'NY10353' has good resistance to psylla and fire blight.

SUMMARY OF THE INVENTION

On the new pear tree 'HW624', the profile of the sides of the fruit of 'HW624' is straight whereas they are concave on

the reference varieties 'Bosc' (R1), 'Harrow Sweet' (R2), 'AC Harrow Crisp' (R3) and 'Bartlett' (R4). The ground colour of the skin of 'HW624' is yellow whereas it is yellow green on 'Bosc', 'Harrow Street' and 'Bartlett'. 'HW624' has a medium to large area of over colour of the skin whereas there is none on 'Bosc', small to medium area on 'Harrow Street' and very small on 'Bartlett'. The over colour of 'HW624' is dark red whereas it is orange red on 'Harrow Street', 'AC Harrow Crisp' and 'Bartlett'. 'HW624' has no russetting around the eye basin, on the cheeks or around the stalk attachment of the fruit whereas 'Bosc' has a large to very large area. The fruit stalk of 'HW624' is thin whereas it is medium thickness on 'Harrow Street' and 'AC Harrow Crisp' and thick on 'Bartlett'. 'HW624' has weak curvature of the fruit stalk whereas the curvature is medium to strong on 'Bosc', medium on 'AC Harrow Crisp' and absent on 'Bartlett'. The attitude of the sepals on the fruit of 'HW624' is spreading whereas it is erect on 'Bosc' and 'Harrow Street' and converging on 'AC Harrow Crisp' and 'Bartlett'. 'HW624' is resistant to moderately resistant to fireblight (*Erwinia amylovora*) whereas 'Bosc' is moderately susceptible and 'Bartlett' is susceptible. 'HW624' is resistant to moderately resistant to pear psylla (*Cacopsylla pyricola* Foerst) whereas the reference varieties are susceptible.

The following are major distinguishing characteristics. 'HW624' is a mid-late season pear cultivar for the fresh market. 'HW624' produces heavy crops of medium-to large-sized fruit, picked about 2 weeks after 'Bartlett'. Fruits are

green when harvested, turning yellow as fruits ripen, and there is a medium red blush where exposed to the sun. The tree has consistently produced heavy crops, with no evidence of biennial bearing. There were no natural fire blight infections on the seedling tree, and results from controlled inoculations indicate a high level of resistance to fire blight. The tree is also highly resistant to pear psylla (*Cacopsylla pyricola* Foerst). In years when orchard populations of psylla have been high, trees of 'HW624' have had no noticeable presence of this insect pest. 'HW624' is not graft-compatible with quince rootstocks. The characteristics most useful in distinguishing 'HW624' are fruit characteristics and resistance to fire blight and resistance to pear psylla.

BRIEF DESCRIPTION OF THE DRAWING

The accompanying photographic illustration illustrates in full color 'HW624'. The colors are as nearly true as reasonably possible in color representation of this type. Colors in the photographs may differ from the color values cited in the detailed botanical description below, which accurately describes the colors of the new pear tree.

FIG. **1** shows pedigree of 'HW624'.

FIG. **2** shows five examples of the fruit of 'HW624' compared to the fruit of 'Bosc' (R1), 'Harrow Sweet' (R2), 'AC Harrow Crisp' (R3) and 'Bartlett' (R4).

DETAILED BOTANICAL DESCRIPTION OF THE INVENTION

The 'HW624' variety is uniform and stable. Asexual propagation maintains uniformity and stability. No off-types, variants or mutations have been found to date. Virus-tested 'HW624' is maintained in North Saanich, British Columbia.

The R.H.S. Colour Chart of The Royal Horticultural Society 1966 version has been used for colour identification of fruit and shoot. The description is based on observation of four trees grafted on seedling rootstock originally established during the 1999 growing season. Comparisons were made with 'Bosc' (R1), 'Harrow Sweet' (R2), 'AC Harrow Crisp' (R3) and 'Bartlett' (R4). Four trees of each variety grafted on 'Bartlett' open pollinated seedling rootstock were spaced about 3 metres apart with about 4.5 metres between rows and were observed during the 2009-2010 growing seasons in Jordan Station, Ontario. Fire blight evaluations and observations were conducted in 1988-2000 in Harrow, Ontario. 'HW624' was observed to be able to survive winter conditions (−29° C.) in Southwestern Ontario, Canada, while still having a full crop the following season. The observed chilling range for 'HW624' is 800-1000 hours, measured during the dormant period temperature below 45° F.

	'HW624'	R1	R2	R3	R4
Tree:					
Vigor	medium to strong	very strong	medium to strong	strong	medium
Branching	strong	medium to strong	strong	medium to strong	medium
Habit	spreading to drooping	spreading	spreading	spreading	spreading

-continued

	'HW624'	R1	R2	R3	R4
Mature height (ft.)	near 12				
Mature spread (ft.)	near 10				
Trunk diameter 30 cm above ground (mm)	near 130				
Trunk colour	197B				
Branch length (cm)	near 50				
Branch diameter (mm)	near 8				
Branch crotch angle	near 35°				
Branch texture	smooth				
Branch colour	177B				

	'HW624'	R1	R2
Shoot—One-year-old:			
Growth	wavy	wavy	wavy
Length of internode (cm)			
Mean	3.42	4.28	3.02
Std. deviation	0.37	0.67	0.48
Length of shoot (cm)	near 15		
Diameter of shoot (mm)	near 4		
Texture	smooth		
Predominant colour on sunny side	brown purple (178A)	brown purple	orange brown
Number of lenticels	many (near 15 per cm^2)	many	medium to many
Shape of lenticels	oblong		
Height of lenticels (mm)	near 2.5		
Diameter of lenticels (mm)	near 1		
Colour of lenticels	156A		
Shape of apex of vegetative bud	acute	acute	acute
Position of vegetative bud in relation to shoot	slightly held out	slightly held out to markedly held out	slightly held out
Length of vegetative bud (mm)	near 15		
Diameter of vegetative bud (mm)	near 2		
Colour of vegetative bud	143B		
Size of bud support	medium	small to medium	small to medium
Shoot—Young:			
Anthocyanin colouration of growing tip (during rapid growth)	very strong (180A)	strong to very strong	medium
Intensity of pubescence (upper third)	weak to medium	weak to medium	weak to medium

	R3	R4
Shoot—One-year-old:		
Growth	straight to wavy	straight to wavy
Length of internode (cm)		
Mean	3.26	3.55
Std. deviation	0.58	0.46
Length of shoot (cm)		
Diameter of shoot (mm)		
Texture		
Predominant colour on sunny side	medium brown	orange brown

-continued

Number of lenticels	medium to many	medium to many
Shape of lenticels		
Height of lenticels (mm)		
Diameter of lenticels (mm)		
Colour of lenticels		
Shape of apex of vegetative bud	acute	acute
Position of vegetative bud in relation to shoot	slightly held out	adpressed
Length of vegetative bud (mm)		
Diameter of vegetative bud (mm)		
Colour of vegetative bud		
Size of bud support	medium	small to medium
Shoot—Young:		
Anthocyanin colouration of growing tip (during rapid growth)	medium to strong	medium
Intensity of pubescence (upper third)	weak to medium	medium

	'HW624'	R1	R2
Leaf—Blade:			
Attitude in relation to shoot	outwards	downwards	outwards
Length (cm)			
Mean	6.5	7.1	7.1
Std. deviation	1.0	1.3	1.2
Width (cm)			
Mean	4.3	4.3	3.8
Std. deviation	0.7	1.0	0.8
Length/Width ratio	small to medium	medium	medium to large
Leaf shape	elliptic		
Shape of base	right-angled	obtuse	right-angled
Shape of apex (excluding pointed tip)	obtuse	right-angled	right-angled
Length of pointed tip	short	short	short
Incisions of margins (upper half)	bluntly serrate	crenate	bluntly serrate
Depth of incisions of margin	shallow	shallow	shallow
Curvature of longitudinal axis	very weak	weak to medium	weak
Leaf texture—top	smooth		
Leaf texture—bottom	smooth		
Leaf colour—top	137B		
Leaf colour—bottom	147B		
Leaf—Petiole:			
Length (cm)			
Mean	2.7	2.2	2.4
Std. deviation	0.6	1.0	0.7
Diameter (mm)	near 1.2		
Colour	144C		
Presence of stipules	present	Absent or weakly present	present
Distance of stipules from basal attachment of petiole	medium to long	medium	short to medium

	R3	R4
Leaf—Blade:		
Attitude in relation to shoot	outwards	outwards
Length (cm)		
Mean	6.3	6.5
Std. deviation	0.8	0.7
Width (cm)		

-continued

Mean	3.8	3.9
Std. deviation	0.7	0.6
Length/Width ratio	medium	medium
Leaf shape		
Shape of base	right-angled to obtuse	right-angled to obtuse
Shape of apex (excluding pointed tip)	right-angled	right-angled to obtuse
Length of pointed tip	short to very short	short
Incisions of margins (upper half)	bluntly serrate	bluntly serrate
Depth of incisions of margin	shallow	shallow
Curvature of longitudinal axis	weak	very weak
Leaf texture—top		
Leaf texture—bottom		
Leaf colour—top		
Leaf colour—bottom		
Leaf—Petiole:		
Length (cm)		
Mean	2.1	2.0
Std. deviation	0.7	0.8
Diameter (mm)		
Colour		
Presence of stipules	present	present
Distance of stipules from basal attachment of petiole	short to medium	short

	'HW624'	R1	R2
Flower:			
Time of beginning of flowering	Early (May)	medium to late	early to medium
Time of full bloom	May		
Location of flower bud on shoot	mainly on spurs	mainly on spurs	mainly on spurs
Length of flower bud (cm)			
Mean	5.4	5.9	5.5
Std. deviation	0.7	0.5	0.6
Shape of flower bud	obtuse		
Diameter of flower bud (mm)	near 5		
Colour of flower bud	49D		
Flower diameter (mm)	near 2		
Flower depth (mm)	near 1		
Flower fragrance	nutty/almond		
Number of flowers per cluster	7		
Sepal length (cm)			
Mean	5.9	8.3	6.7
Std. deviation	0.6	0.7	0.7
Attitude of sepals in relation to corolla	recurved	recurved	recurved
Sepal number	5		
Sepal shape	obtuse		
Sepal width	(mm)	near 2	
Sepal apex and margin	reddish and pointed apex and margin		
Sepal texture—top	smooth		
Sepal texture—bottom	smooth		
Sepal colour—top	22A		
Sepal colour—bottom	35B		
Arrangement of petals	not touching to touching	not touching	touching to overlapping
Petal number	5		
Petal shape	irregular		
Petal apex and margin	irregular		
Petal texture—top	smooth		
Petal texture—bottom	smooth		
Petal colour—top	NN155C		

-continued

Petal colour—bottom	NN155C		
Position of stigma in relation to stamens	same level	same level	above
Size of petal (length/width (mm))	small to medium (10/12)	medium	medium
Shape of petal (excluding the claw)	circular to broad ovate	ovate	circular
Shape of base of petal (excluding the claw)	cuneate to rounded	cuneate	rounded
Length of claw of petal	short	medium	medium
Anther number	12		
Anther length (mm)	near 3		
Pollen colour	N200A		
Stigma length (mm)	near 0.1		
Stigma colour	155B		
Ovary colour	192D		

	R3	R4
Flower:		
Time of beginning of flowering	medium to late	medium
Time of full bloom		
Location of flower bud on shoot	mainly on spurs	mainly on spurs
Length of flower bud (cm)		
Mean	6.3	4.1
Std. deviation	0.4	0.3
Shape of flower bud		
Diameter of flower bud (mm)		
Colour of flower bud		
Flower diameter (mm)		
Flower depth (mm)		
Flower fragrance		
Number of flowers per cluster		
Sepal length (cm)		
Mean	7.9	7.0
Std. deviation	1.1	1.2
Attitude of sepals in relation to corolla	recurved	spreading to recurved
Sepal number		
Sepal shape		
Sepal width		
Sepal apex and margin		
Sepal texture—top		
Sepal texture—bottom		
Sepal colour—top		
Sepal colour—bottom		
Arrangement of petals	touching	touching to overlapping
Petal number		
Petal shape		
Petal apex and margin		
Petal texture—top		
Petal texture—bottom		
Petal colour—top		
Petal colour—bottom		
Position of stigma in relation to stamens	same level	same level
Size of petal (length/width (mm))	small to medium	medium
Shape of petal (excluding the claw)	circular	circular
Shape of base of petal (excluding the claw)	rounded	Rounded
Length of claw of petal	very short	short
Anther number		
Anther length (mm)		
Pollen colour		
Stigma length (mm)		
Stigma colour		
Ovary colour		

	'HW624'	R1	R2
Fruit:			
Length (cm)			
Mean	8.7	10.2	9.1
Std. deviation	1.0	0.9	0.9
Maximum diameter (cm)			
Mean	6.9	7.0	6.6
Std. deviation	0.6	0.5	0.6
Length/Diameter ratio	small to medium	medium to large	medium
Position of maximum diameter	slightly towards calyx	slightly towards calyx to clearly towards calyx	slightly towards calyx
Size	large	large	medium
Shape	slightly asymmetric		
Symmetry (in longitudinal section)	slightly asymmetric	slightly asymmetric to strongly asymmetric	slightly asymmetric
Profile of sides	straight	concave	concave
Weight (g)—mean	159.45		
Ground colour of skin	Yellow (11B)	yellow green	yellow green
Relative area of over colour	medium to large	absent or very small	small to medium
Hue of over colour	dark red (42B)		orange red
Relative area of russet around eye basin	absent or very small	large to very large	absent or very small
Relative area of russet on cheeks	absent or very small	large to very large	absent or very small
Relative area of russet around stalk attachment	absent or very small	large to very large	absent or very small
Length of stalk (mm)			
Mean	3.2	5.0	3.4
Std. deviation	0.7	0.7	0.6
Thickness of stalk	thin (near 4 mm)	thin to medium	medium
Curvature of stalk	weak	medium to strong	weak to medium
Attitude of stalk in relation to axis of fruit	oblique	oblique	oblique
Depth of stalk cavity	medium to deep (near 5 mm)	absent or very shallow	shallow
Diameter of stalk cavity	near 15 mm		
Attitude of sepals (at harvest)	spreading	erect	erect
Eye basin (at harvest)	present	present	present
Depth of eye basin (at harvest)	medium to deep (near 10 mm)	shallow	shallow
Width of eye basin (at harvest)	medium (near 35 mm)	narrow to medium	medium to broad
Relief of area around eye (at harvest)	slightly ribbed	slightly ribbed	slightly ribbed
Texture of flesh	very fine	very fine	very very fine
Firmness of flesh	medium to firm	medium	soft to medium
Juiciness of flesh	medium to juicy	juicy	juicy to very juicy
Flesh brix	11.8 to 13.5		
Flesh colour	158C		
Fruit locule number per fruit	5		
Fruit locule length (mm)	near 10		
Fruit locule width (mm)	near 6		

-continued

Seed shape	ovate	ovate	elliptic
Seed length (mm)	near 8		
Seed width (mm)	near 4		
Number of seeds per fruit	3 to 5		
Number of seeds per locule	1		
Seed colour	165B-C		
Time of maturity for consumption	Late (September)	very late	very late
Observed harvest dates of fruit	Sep. 18, 2013 Sep. 23, 2014 Sep. 19, 2015 Sep. 14, 2016		
Fruit production (lbs per tree per year)	120		

	R3	R4
Fruit:		
Length (cm)		
Mean	9.1	9.0
Std. deviation	0.8	0.9
Maximum diameter (cm)		
Mean	6.8	6.8
Std. deviation	0.6	0.6
Length/Diameter ratio	medium	small to medium
Position of maximum diameter	slightly towards calyx	in middle
Size	large	medium to large
Shape		
Symmetry (in longitudinal section)	slightly asymmetric	symmetric to slightly asymmetric
Profile of sides	concave	concave
Weight (g)—mean		
Ground colour of skin	yellow	yellow green
Relative area of over colour	medium	between very small and small
Hue of over colour	orange red	orange red
Relative area of russet around eye basin	absent or very small	absent or very small
Relative area of russet on cheeks	absent or very small	absent or very small
Relative area of russet around stalk attachment	small	very small to small
Length of stalk (mm)		
Mean	3.7	2.8
Std. deviation	0.9	0.6
Thickness of stalk	medium	thick
Curvature of stalk	medium	absent or very weak
Attitude of stalk in relation to axis of fruit	straight to oblique	straight to oblique
Depth of stalk cavity	medium	medium

-continued

Diameter of stalk cavity		
Attitude of sepals (at harvest)	converging	converging
Eye basin (at harvest)	present	present
Depth of eye basin (at harvest)	shallow to medium	deep
Width of eye basin (at harvest)	medium	narrow
Relief of area around eye (at harvest)	smooth	embossed
Texture of flesh	very very fine	very very fine
Firmness of flesh	medium	medium to firm
Juiciness of flesh	medium to juicy	juicy
Flesh brix		
Flesh colour		
Fruit locule number per fruit		
Fruit locule length (mm)		
Fruit locule width (mm)		
Seed shape	elliptic	ovate
Seed length (mm)		
Seed width (mm)		
Number of seeds per fruit		
Number of seeds per locule		
Seed colour		
Time of maturity for consumption	medium	medium to late
Observed harvest dates of fruit		
Fruit production (lbs per tree per year)		

	'HW624'	R1	R2
Disease/Pest Reactions:			
Fire blight (*Elwininia amylovora*)	resistant to moderately resistant	moderately susceptible	resistant to moderately resistant
Pear psylla (*Cacopsylla pyricola*)	resistant to moderately resistant	susceptible	susceptible

	R3	R4
Disease/Pest Reactions:		
Fire blight (*Elwininia amylovora*)	resistant to moderately resistant	susceptible
Pear psylla (*Cacopsylla pyricola*)	susceptible	susceptible

The 'HW624' variety has not been observed under all possible environmental conditions to date. Accordingly, it is possible that the phenotypic expression may vary somewhat with changes in light intensity and duration, cultural practices, and other environmental conditions.

What is claimed:

1. A new and distinct variety of pear tree substantially as herein illustrated and described.

* * * * *

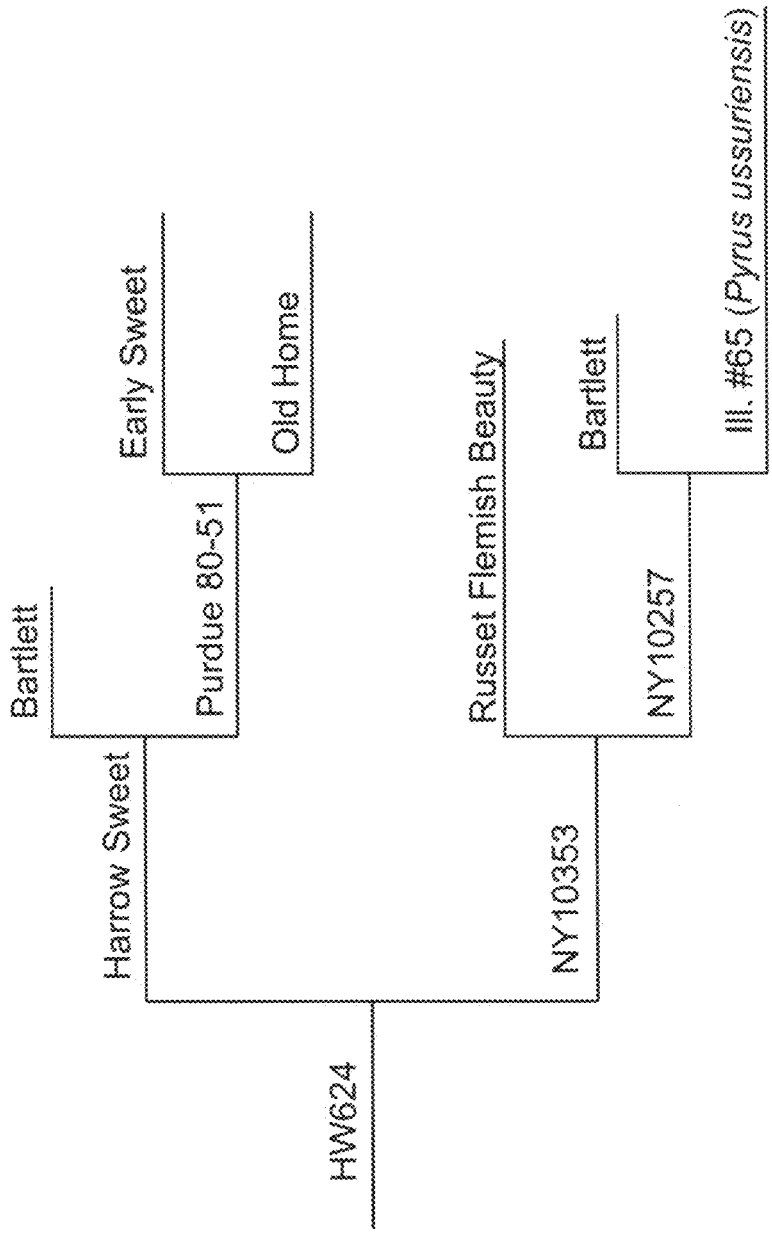
HW624
Harrow Sweet
Bartlett
Purdue 80-51
Early Sweet
Old Home
NY10353
Russet Flemish Beauty
NY10257
Bartlett
Ill. #65 (Pyrus ussuriensis)

FIG. 1

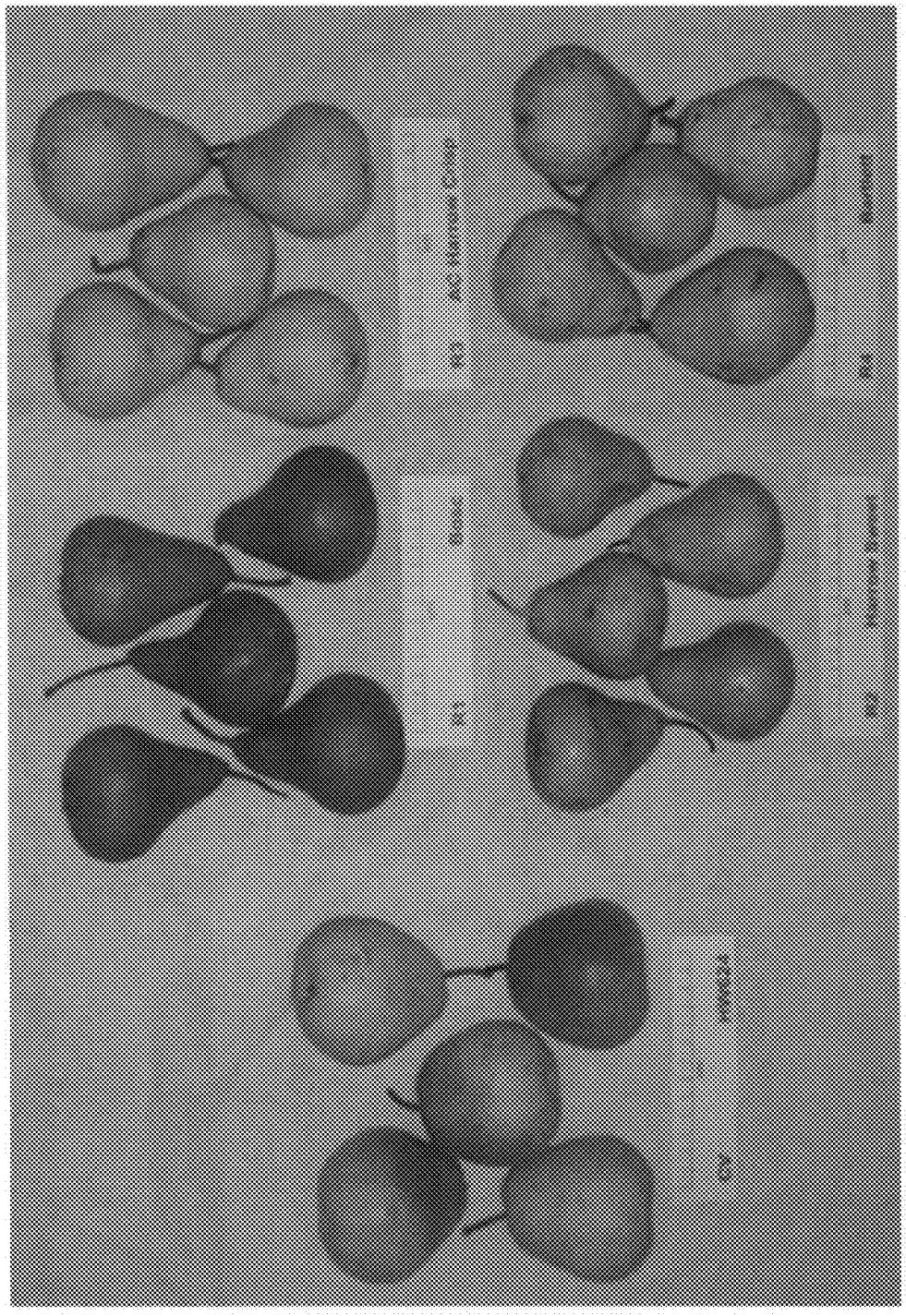

FIG. 2