



APPLICATIONS UNDER EXAMINATION

APPLE

APPLE (*Malus domestica*)

Proposed denomination: 'KAR4'
Application number: 08-6308
Application date: 2008/04/24
Applicant: Agriculture & Agri-Food Canada, Kentville, Nova Scotia
Agent in Canada: Ann de St. Remy, Agriculture & Agri-Food Canada, Lacombe, Alberta
Breeder: Charles G. Embree, Agriculture & Agri-Food Canada, Kentville, Nova Scotia

Varieties used for comparison: 'Novamac' and 'McIntosh'

Summary: *The one year old shoots of 'KAR4' are thicker than 'Novamac' and 'McIntosh'. 'KAR4' has a wider leaf than 'Novamac' and longer and wider leaf than 'McIntosh'. The fruit of 'KAR4' are slightly smaller than the reference varieties. 'KAR4' flowers earlier and is ready for harvesting earlier than the reference varieties.*

Description:

TREE: strong vigour, ramified, upright habit, bearing on spurs and long shoots

ONE-YEAR OLD SHOOT: thick, medium internode length, medium brown to reddish brown colour, moderate pubescence, few lenticels

LEAF: upwards attitude in relation to shoot, medium length/width ratio, medium green intensity, type 1 serrate margin on upper half, medium pubescence on lower side

PETIOLE: medium anthocyanin colouration at base

FLOWER: dark pink bud in balloon stage, intermediate arrangement of petals, stigma below anthers, early beginning of flowering

FRUIT: small to medium anthocyanin overcolour on young fruit, small to medium size, medium height/diameter ratio, obloid, absent or weak ribbing, moderate crowning at calyx end, early harvest and eating maturity, medium length sepal, small eye, aperture of locules in transverse section are fully opened

EYE BASIN: medium depth and width

STALK: thick, medium length

STALK CAVITY: medium depth and width

FRUIT SKIN: moderate glaucosity, absent or very weak greasiness, yellow green ground colour, moderate area of solid red flush with weakly defined narrow stripes of red over colour, medium area of russet around stalk attachment, absent or small area of russet on cheeks and around eye basin, medium number of medium sized lenticels

FRUIT FLESH: medium firmness, cream colour, moderate browning one hour after being cut with a stainless steel knife, low percentage of total sugars in fruit juice

DISEASE RESISTANCE: moderately resistant to mildew (*Podosphaera leucotricha*), resistant to Scab (*Venturia inaequalis*)

INSECT RESISTANCE: susceptible to Apple maggot (*Rhagoletis pomonella*), moderately susceptible to Codling moth (*Laspeyresia pomonella*)

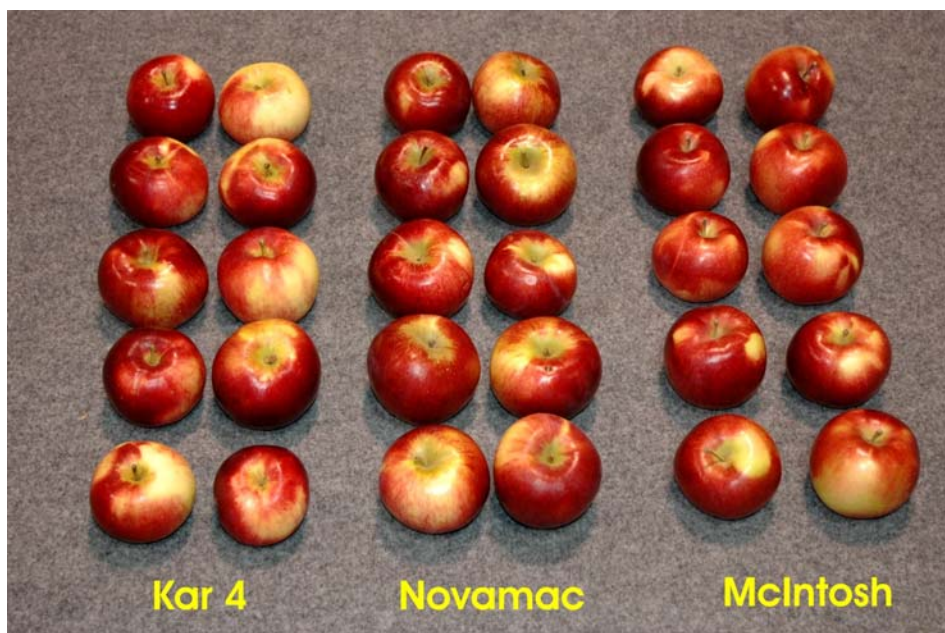
Origin and Breeding: 'KAR4', previously known as 'S47-20-37' originated from the cross between 'PaulaRed' and 'Novamac' made in 1978 at the Agriculture & Agri-Food Canada Kentville Research Station, Kentville, Nova Scotia. The resultant fruit were collected, their seeds dried and stored for approximately one month then placed in stratification media. Those seed which germinated were grown and screened for susceptibility to apple scab. Resistant seedlings were kept and cared for in an extensive management approach. It was propagated on MM.106 rootstock and six trees were planted in a research trial in 1995 at the Kentville Research Station.

Tests and Trials: Tests and trials were conducted at the Atlantic Food & Horticulture Research Centre, Agriculture & Agri-Food Canada, Kentville, Nova Scotia during the summer/fall of 2008. There were 7 trees of each variety with spacing of 3.5 meters between trees within the row and 5 meters between the rows.

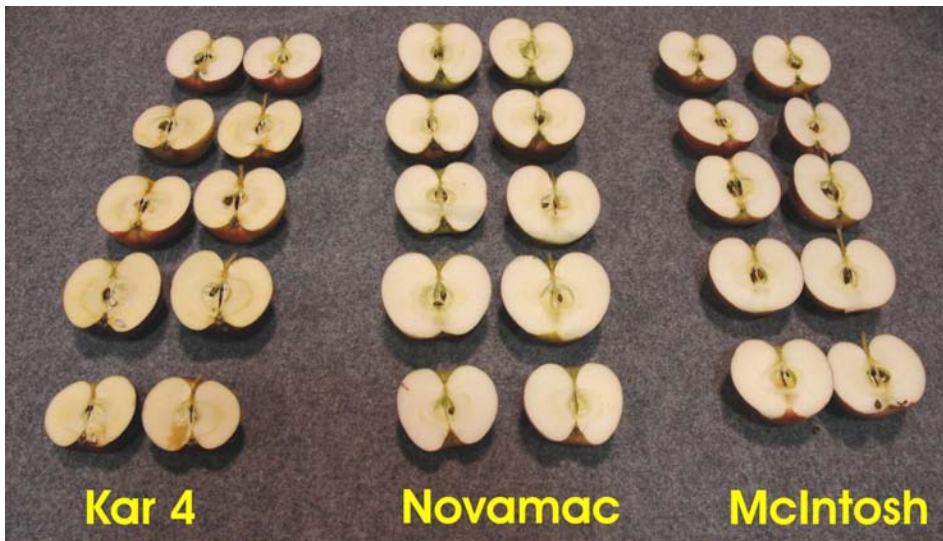
Comparison table for 'KAR4'

	'KAR4'	'Novamac'*	'McIntosh'*
<i>Leaf length (cm)</i>			
mean	9.435	9.459	7.377
std. deviation	1.197	0.985	0.836
<i>Leaf width (cm)</i>			
mean	7.115	6.18	5.83
std. deviation	0.535	0.596	0.604
<i>Fruit height (cm)</i>			
mean	5.87	6.536	6.342
std. deviation	0.427	0.296	0.234
<i>Fruit diameter (cm)</i>			
mean	7.403	7.79	7.602
std. deviation	0.392	0.313	0.284

*reference varieties



Apple: 'KAR4' (left) with reference varieties 'Novamac' (centre) and 'McIntosh' (right)



Apple: 'KAR4' (left) with reference varieties 'Novamac' (centre) and 'McIntosh' (right)



Apple: 'KAR4' (left) with reference varieties 'Novamac' (centre) and 'McIntosh' (right)

Proposed denomination: 'KAS9'
Application number: 08-6309
Application date: 2008/04/24
Applicant: Agriculture & Agri-Food Canada, Kentville, Nova Scotia
Agent in Canada: Ann de St. Remy, Agriculture & Agri-Food Canada, Lacombe, Alberta
Breeder: Charles G. Embree, Agriculture & Agri-Food Canada, Kentville, Nova Scotia

Varieties used for comparison: 'Novaspy' and 'Empire'

Summary: 'KAS9' has a longer leaf with a longer petiole than 'Novaspy' and 'Empire'. The fruit of 'KAS9' are larger and a darker red than 'Novaspy' and 'Empire'. 'KAS9' has a slight pink tinge to the flesh of the fruit while 'Novaspy' and 'Empire' do not. 'KAS9' harvest maturity is later than both reference varieties.

Description:

TREE: strong vigour, ramified, spreading habit, bearing on spurs and long shoots

ONE-YEAR OLD SHOOT: medium to thick, medium internode length, reddish brown colour, weak pubescence, few lenticels

LEAF: outward attitude in relation to shoot, large length/width ratio, medium green intensity, type 2 serrate margin on upper half, absent or very weak pubescence on lower side

PETIOLE: strong anthocyanin colouration at base

FLOWER: light pink bud in balloon stage, intermediate to overlapping arrangement of petals, stigma at the same level as anthers, medium beginning of flowering

FRUIT: large anthocyanin overcolour on young fruit, medium size, small height/diameter ratio, globose, moderate ribbing, absent or weak crowning at calyx end, very late harvest readiness, medium eating maturity, large sepal, medium sized eye, aperture of locules in transverse section are moderately opened

EYE BASIN: deep and wide

STALK: medium thickness, short

STALK CAVITY: medium depth and width

FRUIT SKIN: moderate glaucosity, absent or very weak greasiness, yellow ground colour, very large area of solid dark purple red flush with weakly defined narrow stripes of dark purple red over colour, medium area of russet around stalk attachment, absent or small area of russet on cheeks and around eye basin, many medium sized lenticels

FRUIT FLESH: firm, white with pinkish striping, weak browning one hour after being cut with a stainless steel knife, medium percentage of total sugars in fruit juice

DISEASE RESISTANCE: susceptible to Scab (*Venturia inaequalis*)

INSECT RESISTANCE: susceptible to Apple maggot (*Rhagoletis pomonella*), moderately susceptible to Codling moth (*Laspeyresia pomonella*)

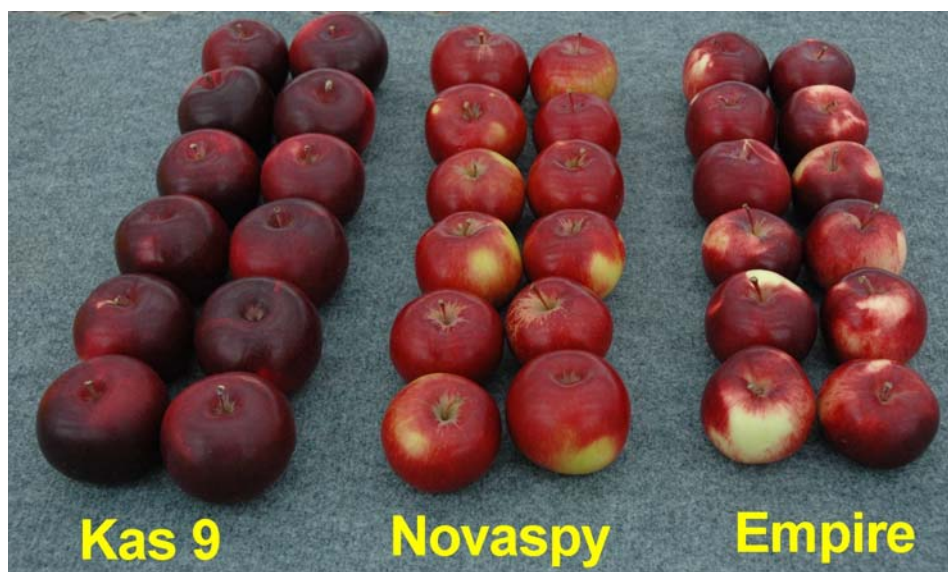
Origin and Breeding: 'KAS9', previously known as 'S23-06-52' originated from the cross between the selections 'NJ32' and 'NJ191456' made in 1963 at the Agriculture & Agri-Food Canada Kentville Research Station, Kentville, Nova Scotia. The resultant fruit were collected, their seeds dried and stored for approximately one month then placed in stratification media. Seedlings were kept and cared for in an extensive management approach. It was propagated on MM.106 rootstock and six trees were planted in a research trial in 1995 at the Kentville Research Station.

Tests and Trials: Tests and trials were conducted at the Atlantic Food & Horticulture Research Centre, Agriculture & Agri-Food Canada, Kentville, Nova Scotia during the summer/fall of 2008. There were 6 trees of each variety with spacing of 3.5 meters between trees within the row and 5 meters between the rows.

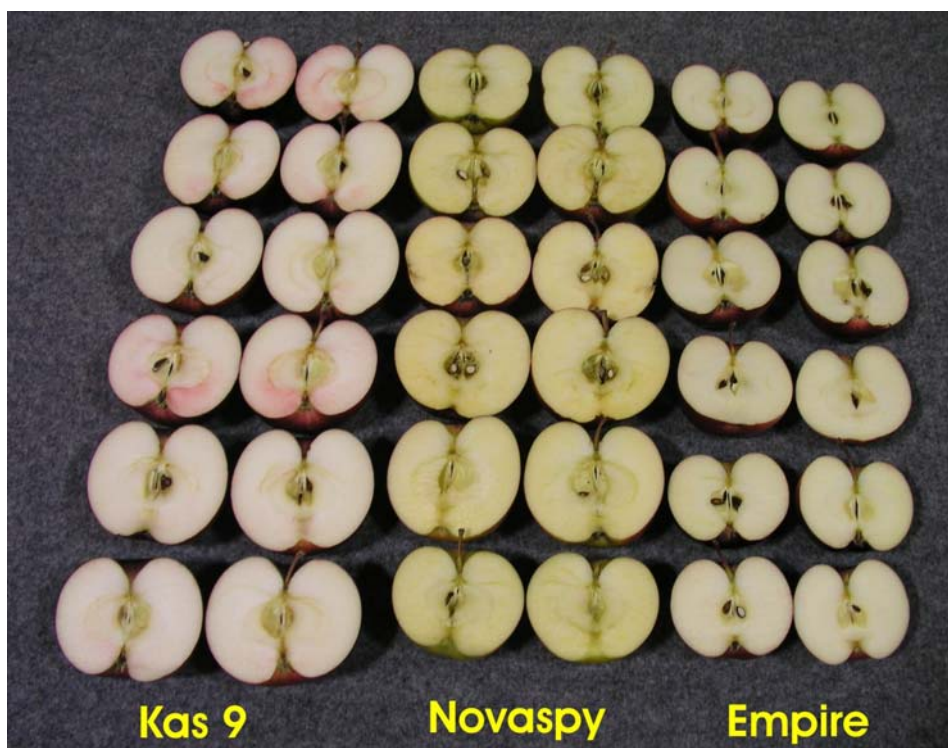
Comparison table for 'KAS9'

	'KAS9'	'Novaspy'*	'Empire'*
<i>Leaf length (cm)</i>			
mean	10.12	8.67	7.701
std. deviation	0.812	1.153	1.04
<i>Petiole length (cm)</i>			
mean	4.475	3.623	3.52
std. deviation	0.40	0.321	0.421
<i>Fruit height (cm)</i>			
mean	6.812	6.277	5.729
std. deviation	0.283	0.367	0.328
<i>Fruit diameter (cm)</i>			
mean	7.962	7.447	6.812
std. deviation	0.154	0.472	0.201

*reference varieties



Apple: 'KAS9' (left) with reference varieties 'Novaspy' (centre) and 'Empire' (right)



Apple: 'KAS9' (left) with reference varieties 'Novaspy' (centre) and 'Empire' (right)



Apple: 'KAS9' (centre) with reference varieties 'Empire' (left) and 'Novaspy' (right)

Proposed denomination:	'September Sentinel'
Application number:	08-6340
Application date:	2008/05/16
Applicant:	Agriculture & Agri-Food Canada, Summerland, British Columbia
Agent in Canada:	Ken Haddrell, Okanagan Plant Improvement Corporation (PICO), Summerland, British Columbia
Breeder:	David W. Lane, Agriculture & Agri-Food Canada, Summerland, British Columbia

Varieties used for comparison: 'Scarlett Sentinel' and 'Wijcik'

Summary: *The one year old shoots of 'September Sentinel' are thinner and have more lenticels than 'Scarlett Sentinel' and 'Wijcik'. 'September Sentinel' has predominantly a dark pink colour of the flower at the balloon stage while it is light pink in the reference varieties. The fruit of 'September Sentinel' has a conic shape while it is globose in 'Scarlett Sentinel' and obloid in 'Wijcik'. 'September Sentinel' has a weaker bloom of the skin than 'Wijcik'. The ground colour of the fruit of 'September Sentinel' is yellow green while it is green in 'Wijcik'. 'September Sentinel' has a red hue of overcolour of the fruit while it is purple red in the reference varieties. The intensity of the over colour in 'September Sentinel' is weaker than in 'Wijcik'. 'September Sentinel' has larger lenticels of the fruit than 'Wijcik'. The aperture of the locules in transverse section of the fruit of 'September Sentinel' are fully opened while they are moderately opened in 'Scarlett Sentinel'.*

Description:

TREE: weak to medium vigour, columnar, bearing on spurs

ONE-YEAR OLD SHOOT: medium thickness, medium brown colour on sunny side, dense pubescence, many lenticels

LEAF: outwards attitude in relation to shoot, medium to large length/width ratio, medium green intensity, biserrate margin on upper half, medium pubescence on lower side

PETIOLE: medium to large anthocyanin colouration at base

FLOWER: dark pink bud in balloon stage, medium diameter flower with petals pressed into horizontal position, overlapping arrangement of petals, stigma at the same level of anthers, early to mid-season beginning of flowering

FRUIT: medium size, small to medium height/diameter ratio, conic, absent or weak ribbing, moderate crowning at calyx end, mid-season harvest and eating maturity, medium length sepal, small to medium sized eye, aperture of locules in transverse section are fully opened

EYE BASIN: medium depth and width

STALK: thick to very thick

STALK CAVITY: medium to deep depth, medium width

FRUIT SKIN: moderate glaucosity, absent or very weak greasiness, yellow green ground colour, large area of solid red flush with weakly defined medium width stripes of medium red over colour, absent or small area of russet around stalk attachment, absent or small area of russet on cheeks and around eye basin, few to medium number of medium sized lenticels

FRUIT FLESH: firm, cream colour

Origin and Breeding: 'September Sentinel' was derived from the cross 8H-09-01 x Co-op 27 using traditional breeding methods made at Pacific Agri-Food Research Centre, Summerland, British Columbia in 1989. The material from the seedling cross was propagated on Malling 26 rootstock in Summerland, British Columbia in 1994. The resulting tree was given the breeder reference # 11W-61-23. 4 propagations were made on Malling 26 rootstock in 1996 and planted in 1998 and further propagations being made on Malling 26 rootstock in 1997 and planted in 1999. Evaluation on the selection began upon fruiting, with the selection criteria being fruit appearance, taste, flesh texture, tree quality, productivity and precocity.

Tests and Trials: Tests and trials were conducted during 2007-2008 at Pacific Agri-Food Research Centre, Summerland, British Columbia. There were 5 trees of each variety. Trees were planted 0.60 meters apart within the row with rows being spaced 4.5 meters apart. The trees were planted in 1996 on M26 rootstock.



Apple: 'September Sentinel' (left) with reference varieties 'Scarlett Sentinel' (centre) and 'Wijcik' (right)



Apple: 'September Sentinel' (bottom centre) with reference varieties 'Scarlett Sentinel' (top left) and 'Wijcik' (top right)