Notice of Release of Colorow Black chokecherry

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<1>ABSTRACT

Colorow Germplasm *Prunus virginiana* L. var. *melanocarpa* (A. Nelson) Sarg. is a selected class release of black chokecherry which is a native, perennial shrub and/or small tree. It was selected and developed from a collection made in Rio Blanco County, Colorado. Colorow Germplasm has performed well in trials near Pinedale, Wyoming and Craig and Meeker, Colorado for over 30 years.

<1>KEY WORDS

Prunus virginiana var. *melanocarpa,* Colorow, wildlife, windbreaks, seed production

<1>NOMENCLATURE

USDA NRCS (2009)

<1>COLLABORATORS

Colorado State Agricultural Experiment Station, Fort Collins, CO; United States Department of Agriculture Natural Resources Conservation Service, Lakewood, CO; Upper Colorado Environmental Plant Center, Meeker, CO;

This selected class of germplasm was jointly released by Colorado State Agricultural Experiment Station, United States Department of Agriculture Natural Resources Conservation Service, and Upper Colorado Environmental Plant Center in 2009. Colorow Germplasm was tested under the experimental designation 9024060. Colorow Germplasm was developed from a collection in Rio Blanco County, Meeker, Colorado.

Species: *Prunus virginiana* L. var. *melanocarpa* (A. Nelson) Sarg
Common Names: black chokecherry, common chokecherry
Plant Symbol: PRVIM
Accession Number: 9024060

<1>COLLECTION SITE INFORMATION

Accession 9024060 Colorow Germplasm was collected on September 3, 1975, by Curt and Pat Carnahan, at an elevation of 6200 feet in Rio Blanco County Township 1N, Range 94W, Section 23 in the town of Meeker, Colorado. Approximations for the site include 16 inches of annual precipitation and a 90 day frost free growing season.

<1>DESCRIPTION

Colorow Germplasm *Prunus virginiana* L. var. *melanocarpa* (A. Nelson) Sarg. is a selected class release of black chokecherry which is a native, perennial shrub and/or small tree reaching. It is a large vigorous chokecherry averaging heights of 12 feet tall and 13.5 feet wide. Its main stem system may be single or may have multiple stems branching at the base (USDA Plants Database 2009). Twigs are slender with prominent red to white lenticels; the bark is greenish at first and later becomes reddish-brown. As the shrub matures the bark becomes grey to black. The root system consists of shallow rhizomes which contribute to its sprouting and rapid colonization. Leaves are alternate, simple, glabrous and elliptic ranging from 2 - 4 inches long and 1 - 2 inches wide with serrate margins. At the apex of the leaf petiole, two glands 1 - 2 centimeters long are visible. The flowers are showy white aromatic racemes with five petals. Mature fruit are fleshy drupes that are dark red to black and possess an acidulous taste. Black chokecherry produces toxic levels of hydrogen cyanide (HCN) or prussic acid in the plant's bark, leaves, stems, and stone/seed pit. However the fleshy outer layer of the fruit is nontoxic. Colorow Germplasm begins flowering in May and the fruit is ripe in mid to late August. Seed should be collected in mid-August to mid-September. When stored properly, Colorow Germplasm seed can stay viable for 10 years or more (UCEPC Annual Technical Reports).

<1>METHOD OF DEVELOPMENT AND DATA SUPPORTING RELEASE

Colorow Germplasm is being released as a selected class of seed and plants. This alternative release is justified because there is no release of this sub-species. In addition, the site of the seed source is near the proximity of the Roan Plateau and the Piceance Basin of western Colorado and eastern Utah. This area, along with southern Wyoming, is undergoing substantial disturbance from oil and gas development.

Colorow Germplasm has been studied at UCEPC for 31 years. In that time ten studies involving Colorow Germplasm have been conducted; six studies on site at UCEPC and four off-site studies. These studies included evaluation of black chokecherry tublings, a germination study, direct seeding methods, and off-center performance studies. Colorow Germplasm was compared with several other *Prunus virginiana* species, one of which was 9024059 another accession from UCEPC. Colorow Germplasm (9024060) exhibited excellent survival, vigor, heavy seed production and light wildlife browsing.

Colorow Germplasm was collected from the parent plant in 1975. In 1977 it was directly seeded into a shrub orchard at UCEPC for initial evaluation. After 11 years of evaluations Colorow Germplasm had the best performance out of seven chokecherry accessions. It had 100% survival, excellent vigor, heavy seed production and very light wildlife use in regards to browsing. In 1988 it was determined to isolate Colorow Germplasm for further performance evaluations. In 1991, 21 sprigs were transplanted to an isolation plot, 20 of the sprigs survived. In 1998 the first seed harvest from the isolation plot occurred, 106 dry weight pounds were collected from the shrubs.

In 2006 UCEPC performed three on-site trials involving Colorow Germplasm, two direct seeding trials using a hand-pushed belt seeder and a direct hand planted trial, and a greenhouse trial. In 2007 a trial was conducted to see how well seed lots from over ten

years of seed harvest would germinate using direct seeding. Most seed lots with the exception of year 2002 had performed well. The trial proved that Colorow Germplasm seed can be viable for at least ten years.
Several off site plantings have involved Colorow Germplasm. In 1994 a 17 year study conducted in cooperation with Colowyo Coal Mine Company proved that Colorow Germplasm was superior among the two chokecherry accessions used in the trial due to its higher survival rate and adequate vigor. In 1996 a 9 year study in Pinedale, Wyoming further proved Colorow Germplasm had good survival and good to fair overall plant vigor over the other two chokecherry accessions (Holzworth).

<1>ECOLOGICAL CONSIDERATIONS

Black chokecherry is an important provider of food, shelter, nesting, and browse for wildlife. However, it has been documented that livestock, primarily cattle and sheep, are very susceptible to poisoning when grazing on black chokecherry. Lethal doses occur when an animal ingests 0.25% of their body weight in an hour or less (CBIF 2009). Black chokecherry produces toxic levels of hydrogen cyanide (HCN) or prussic acid in the plant's bark, leaves, stems, and stone/seed pit. HCN is produced enzymatically from cyanogenic glycosides when plant tissue is fragmented during mastication, rumination, and frost damage (Crowder 2003). Leaves of chokecherry are especially toxic in spring and summer, but poisoning is not likely to occur then because chokecherry is not relished by cattle and sheep when more palatable forage is abundant (Muenscher 1949).
Colorow Germplasm does display minor aggressive behavior because of rhizomatous roots. Some routine management may be required to control and maintain this plant species in an agronomic, horticultural or home landscaping application, but control practices are financially feasible and practical. No specific management is anticipated in range or large landscape plantings where the species naturally occurs.

<1>ANTICIPATED CONSERVATION USE

Colorow Germplasm is cold tolerant, has excellent survival, vigor, heavy seed production and has low animal use in regards to browsing. However, it is a valuable plant for providing food, shelter, cover, and nesting habitat for wildlife. Its fruit is readily sought out by bear, birds, rabbits, rodents, and small mammals (Geyer 2008). The young immature plants are desirable to deer, elk, moose, bear, bighorn sheep, and pronghorn during the spring as well as winter months. During the spring months, while in bloom, black chokecherry provides an excellent source of nectar for many pollinators such as ants, butterflies, honeybees, flies, and hummingbirds.
Colorow Germplasm can be used in urban landscaping enhancement plantings, range and mined land reclamation plantings, shelterbelts, and windbreaks. Its extensive root system is beneficial in reducing and controlling soil erosion in rangelands and mine land reclamation. In most windbreaks, chokecherry is a good shrub to be used in the outside rows. Its dense growth makes it ideal for reducing wind near the ground surface (Kansas Forest Service).

<1>ANTICIPATED AREA OF ADAPTATION

Colorow Germplasm can be found at elevations ranging from 500 – 10,000 feet (Welch). This species can be found along streambanks, drainages, gullies, sheltered hill slopes, and canyon bottoms. It is well adapted to soil types that range from Entisols to Mollisols that have soil textures ranging from sandy loams to clays. It can tolerate moderately acidic (pH 3.5), moderately basic (pH 7.6) and weakly saline soils. However, it cannot tolerate soils that are poorly drained or suffer from prolonged flooding periods. It is well suited in sites that receive 12 to 30 inches of precipitation annually (Wasser).

<1>AVAILABILITY OF PLANT MATERIALS

Colorow Germplasm black chokecherry was released in 2009. UCEPC will maintain G1 seed. G1 seed and G2 plants will be available to growers and nurseries. Growers and nurseries may sell G1 seed or G2 plants. No seed beyond G1 or plants beyond G2 will be eligible for certification as Colorow Germplasm.

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