

**A Conservation Plant Released by The Natural Resources Conservation Service
Plant Materials Center, Aberdeen, Idaho**

'IMMIGRANT'

forage kochia

***Bassia prostrata* (L.) A.J. Scott ssp. *virescens* (Fenzl) Prat.**

'Immigrant' forage kochia [*Bassia prostrata* (L.) A.J. Scott] is a cultivar released by the USDA Soil Conservation Service, (now Natural Resources Conservation Service), USDA Forest Service Intermountain Forest and Range Experiment Station, Utah State Division of Wildlife Resources, and the State Agricultural Experiment Stations of Arizona, Idaho, and Utah in 1985.

Description

Forage kochia is an introduced, semi-evergreen, half-shrub. Plants may live up to 15 years and are 1 to 3 feet tall with a deep tap root and an extensive fibrous root system. Leaves are linear, 0.1 to 0.5 inches long, and hairy. Flowers are clustered on a spicate to paniculate inflorescence in the upper stems. Seed stalks and upper stems turn red in late summer and fall, while the lower branches retain a green appearance year-round. Flowers bloom from July to September.



Source

The original collection for Immigrant was made at the Stavropol Botanical Gardens, USSR, in 1966. It was evaluated in rangeland seeding and mine spoil reclamation trials in Utah, Idaho, Nevada, Oregon, Arizona, New Mexico, and Wyoming. Immigrant showed superior performance in plant longevity, forage production, forage quality, palatability, and competitiveness with annuals.

Conservation Uses

Range/livestock:

Forage kochia is highly nutritious to cattle and is recommended for standing fall and winter forage as an alternative to harvested hay. For the best nutritional benefits, a combination of forage kochia and dormant grass during fall and winter months is recommended.

Range Rehabilitation:

Forage kochia was originally introduced into the U.S. to compete with halogeton (*Halogeton glomeratus*). It has since been shown to compete well against other aggressive, exotic annual weeds such as cheatgrass (*Bromus tectorum*), Russian thistle (*Salsola tragus*) and medusahead (*Taeniatherum caput-medusae*). Studies have shown that forage kochia begins growth at very cool temperatures at the same time of year as cheatgrass providing direct competition for limited water resources.

Greenstrip Plantings:

Forage kochia has been successfully used for greenstrip or firebreak plantings in the Intermountain West. Plants are competitive against annual weeds, thus decreasing the fine fuel load and fire interval. Additionally, forage kochia is fire tolerant and remains green through the fire season. Studies show that forage kochia reduces flame intensity and can suppress or even stop wildfires.

Area of Adaptation and Use

Immigrant is adapted for use in semiarid rangelands in saline desert, desert shrub and sagebrush steppe communities receiving 6 to 16 inches mean annual precipitation. This species is tolerant of saline and sodic soils but does not perform well

on neutral or acidic soils. Forage kochia is tolerant of extreme temperatures from -25 to 104 °F. Plants do well on a range of soil textures from sandy loam to heavy clay, but forage kochia has been most successful on heavy soils.

Establishment and Management for Conservation Plantings

Forage kochia seed loses viability quickly, even when processed and stored under proper conditions. Always use current year's seed that has a recent germination test to ensure the best chances for establishment success. Best establishment comes from dormant fall or winter seedings which allow the seed to germinate and begin growth very early in the spring. Seed should be broadcast or drilled on the soil surface which has been lightly disturbed by harrowing or alternatively, spread directly onto snow. Seed drilled and pressed into soil to depths more than 1/16 inch will rarely germinate or establish. Burning prior to seeding has positively affected establishment. For wildlife plantings, forage kochia should be used as part of a seed mixture. Seeding rates range from 0.025 to 0.25 pure live seed (PLS) lb per acre depending on conditions and objectives. For greenstrip plantings, where forage kochia is planted as a monoculture, higher seeding rates of 2.0 to 4.0 PLS lb/acre are recommended.

Forage kochia can be used as year-round forage under proper management. Spring grazing can be more detrimental to forage production than fall or winter grazing; however, forage kochia is rarely grazed during the spring when green grass is available. The earliest grazing should occur in late June to mid-July when the grasses have gone dormant. Its "preference" increases throughout the summer and early fall. Plants grazed to less than two inches will show reduced growth the following year.

Ecological Considerations

There is concern that forage kochia could become invasive. Forage kochia readily spreads via seed, and studies indicate that plants will spread under favorable conditions into bare or disturbed sites where competition is limited.

One source of concern is the ability of forage kochia to invade slick spot communities in southern Idaho. These sites are habitat for the federally listed threatened species, slickspot peppergrass (*Lepidium papilliferum*).

It has been shown that forage kochia is only distantly related to the invasive kochia (*Kochia scoparia*) and native shrub Grey Molly (*Kochia americana*) and will not hybridize with either species.

Seed and Plant Production

Seed production fields should be planted at a rate of 1.5 PLS lb per acre or established with transplants with 12 inch in-row plant spacing and three feet between-row spacing. Seed production fields typically produce between 400 and 600 pounds per acre of clean seed. Seed requires a hard fall frost before it will mature. Seed fields in areas with early to mid-fall snows have resulted in complete seed production failure because the snow caused seed to drop before seed harvest could occur. Seed production begins to decline after plants are approximately 5 to 6 years old. There are an estimated 395,000 seeds per pound. Seed needs to be dried to less than 7 percent moisture and stored in cool, dry conditions, 36 to 50° F.

Availability

For conservation use: Immigrant forage kochia is available from the commercial seed market.

For seed or plant increase: Breeder and Foundation seed is maintained by Utah Crop Improvement Association.

For More Information

Aberdeen PMC, 1691A S 2700 W, Aberdeen, Idaho. (208) 397-4133. website (www.plant-materials.nrcs.usda.gov/idpmc).



Citation

Release Brochure for 'Immigrant' forage kochia (*Bassia prostrata*). 2023. USDA-Natural Resources Conservation Service, Aberdeen PMC. Aberdeen, Idaho.

For additional information about this and other plants, please contact your local USDA Service Center, NRCS field office, or Conservation District <<http://www.nrcs.usda.gov/>>, and visit the PLANTS Web site <<http://plants.usda.gov>> or the Plant Materials Program Web site <<http://www.plant-materials.nrcs.usda.gov>>

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