

RESILIENT AGROSILVOPASTORAL SYSTEMS

CGIAR RESEARCH PROGRAM ON LIVESTOCK

Aims to increase the productivity of livestock agri-food systems in sustainable ways across the developing world.

Managing agrosilvopastoral systems: promoting threatened plant species

Stipa parviflora Desf.: drought tolerant, palatable, perennial grass species

Stipa parviflora or small-flowered feather grass is a densely caespitose perennial grass species belonging to the Poaceae family, usually with several erect culms and growing up to 70 cm high. It is a xerophyte common in arid and semiarid flats and plains, and also on hill slopes and dry mountains. It occurs on fixed and compact sandy soils. Leaves radical, stiffish, filiform, smooth, convoluted, and short; panicle diffused, elongated, and somewhat drooping; awns naked and capillaceous. Roots perennial, fibrous, flexuose, wavy, and long.

Benefits:

- Highly palatable
- Highly nutritious
- Well adapted to dry conditions
- Adapted to a wide range of soil textures
- Useful for erosion control
- Used in traditional herbal therapy



Photo credit:
Abdelmonaim
Homrani Bakali

Scientific name:
Stipa parviflora Desf.

Common names:
Small-flowered feather
grass, عذم

Location:
Mediterranean Basin to
Iran

Culms many, from the same head, slender, and erect. Fruits are caryopses with adherent pericarp and fusiform.

Stipa parviflora is used in traditional herbal therapy specifically for treating intestinal worms and eczema. It is a highly palatable species and is the major grass consumed by animals in all seasons with the highest consumption in spring and summer and the lowest in winter. Its awns do not trouble livestock and it is often grazed until only stem bases remain.



Stipa parviflora with upright flowering stems (i.e. culms)

Photo credit: Abdelmonaim Homrani Bakali



Stipa parviflora growing in a coarse gravelly wadi sediments



The spikelets are arranged into a flowering head (inflorescence)

Exclosure promotes *Stipa parviflora* by the biological process of recovery. Particularly in the surroundings of villages, perennial forbs and grasses such as *Stipa parviflora* only grow under the protection of dwarf shrubs. This species is used for rehabilitation/restoration of degraded areas and erosion control.

Establishment and Management

Stipa parviflora is a perennial plant with long- and short-range dispersal and sexual and clonal reproduction; it develops an extensively branched rhizome that fragments by withering. Flowering generally occurs in May, and fruit maturation during May–June. The indehiscent fruit is monospermous.

During the process of fruit ripening, the awns often remain hooked together in a way that several caryopses are blown away as a single, much heavier dispersal unit (synaptospermy). Additionally, long-range dispersal is easily promoted by attachment to animals.

The diaspores of *Stipa parviflora* are trypanophorous; the lower part of the awn twists when dry and straightens when wet.

They can penetrate the soil where at least some of them remain dormant until the next rainy season. Following several months of after-ripening, all caryopses are able to germinate within a few hours and under a wide range of temperatures.

Nutritional Composition

Stipa parviflora contains 2.6% crude protein, 14% Ash. It is a good source of minerals including phosphorus, calcium, magnesium, and potassium (1.4, 12, 3.3, and 6.8 mg/g respectively).

Effective Management

- Germinate without any delay under suitable environmental conditions
- High germination percentage (93%)
- Weak tolerance to shade
- Grazing-sensitive species
- Reproduces from seed and through tillering
- Protection from grazing is needed for good establishment

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ICARDA's Rangeland Ecology and Forages unit (REF)

The REF team promotes advances in rangeland ecology and pasture management in the dry areas. This series of factsheets is dedicated to the characterization of promising range and forage species aimed at alleviating the feed gap, limiting water runoff and soil erosion, restoring degraded rangelands and maintaining a healthy ecosystem.