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Parthenium: Its Effect and Control

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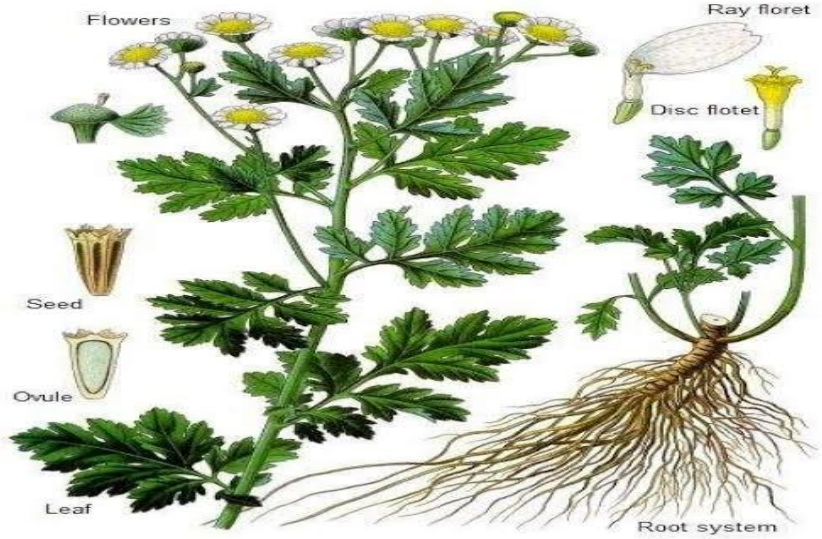
What is parthenium?

Parthenium heterosporous, commonly known as Carrot grass or Congress grass because of its carrot-like appearance, is a perennial herb that belongs to the *Asteraceae* family. It originated especially from Mexico. In 1955, after the report of the presence of *Parthenium* in Pune (Maharashtra), it spread across the India like a forest fire. Now it has affected about 35 million hectares of land in India. It is a concern to spread over the agricultural land through road sides, railway lines, sewage, waste, industrial, open drainage systems and irrigation canals.



How will it be identified?

- *Parthenium* looks like a leaf of a carrot leaf, hence it is called carrot grass.
- It was 1.5 to 2.0 meters high.
- It has many branches.
- Stems and leaves are covered with fine hairs.
- The flowers are white.

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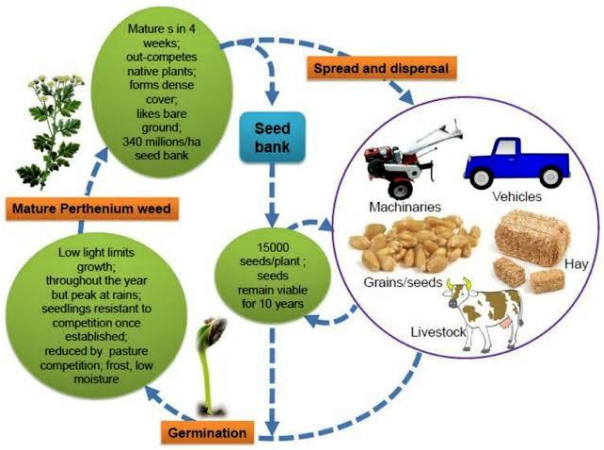
Spreading of parthenium

It mainly spreads through seeds. It has the potential to produce up to 9,44,000 seeds/mtr and one tree can produce about 5,000-25,000 seeds. The seed pods are very light and can be easily transported by wind, water or various human activities. *Parthenium* has the ability to regenerate from cut or broken parts.



Hazardous Effect of Parthenium

In general, *Parthenium* is a toxic, problematic, allergic and destructive herb that is often regarded to be a serious risk to both animals and humans. In India and Australia, it is considered as one of the main sources of various types of skin and nasal-respiratory diseases like asthma. Inevitably, many problems such as public roads garden and also creates blockade and park, Residential landscaping reduces beautification costs. It is a threat to biodiversity and environmental protection. In India and other countries, efforts have been made to manage weeds by various methods since the threat of erosion. But so far, no single method has proved satisfactory because each method suffers from one or more limitations such as cost effectiveness, short-term control, environmental protection and high cost. Therefore, there is a need to integrate all the methods and adopt an integrated approach to managing the system accordingly.

Integrated management of Parthenium

Efforts have been made for this weed management in India and other countries since the time of Parthenium threat. But so far, no single method has proved satisfactory as each method suffers from one or more limitations such as difficulty, temporary relief, environmental protection, high cost. Therefore, there is a need to integrate all the methods and accordingly adopt an integrated system management approach.

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1. **Hand picking system:** During monsoon before flowering unearth the *Parthenium.* As sensitive persons, due nature of the weed, get affected to skin problems, so it is recommended to wear gloves or use polythene on the hands while handling the weed. *Parthenium* is therefore not a problem of one person, it is a problem of the whole community, colonists, industrial and large-scale agricultural workers. Hence it should be encouraged to cut down the weeds through voluntary steps.

2. **Cultural management:** Farmers should adopt fast growing crops like bajra, paddy and corn to suppress the growth of this weed in the field.
3. **Legal management:** In India, to control this weed, *Parthenium*, for the first time in the state of Karnataka legal steps were taken. To suppress the growth of Parthenium the steps would be first of all taken at the municipality or state level.
4. **Chemical management:** Prevention and spread of *Parthenium* in non-crop areas can be controlled using glyphosate (1.0-1.5%), but if weed control is desired other than Parthenium, metribuzin (0.3- 0.5%) or 2,4-D (1.0-2.0 %) can be used. In different crops, herbicides should be used only after consultation with agronomists because different crops require different herbicides. Alachlor (2.0 kg/ha) can be used to control *Parthenium* in soybean, sorghum, and tomato crops. Metribuzin (0.50 to 0.75 kg/ha) can be used after sowing to control.
5. **Use of biological control agents:** Biological Control is the use of natural enemy by humans to control weeds. *Parthenium* can be controlled by its natural predators, such as insects, fungi, nematodes, snails, parasites. Biological Control does not possess any threat to environment and biodiversity. Biological control methods are self-infested

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whereas other control measures require periodic intervention. Under biological control programs, Pesticides are imported from other countries, where the pest enters the plant and affects the root of the plant.

It was imported based on the success in the year 1982 from Mexico. *Zygogramabicolorate polyster* (Coleopura: Chrysomelidae), this insect was reported to be effective in controlling Parahenium in various parts of the country. Light yellow eggs are usually laid on the upper side of leaves. It lays cross-fertilized eggs 5-6 times in a year. The egg hatched in 4 to 7 days. The life cycle of the insect is within 22 to 32 days. Both adults and larvae are feed on the Parthenium weed. By feeding continuously on Parthenium, it slowly controls it. Younger and tender plants are relatively easier to feed than matured one.