Puncturevine

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Puncturevine

(Tribulus terrestris)

Puncturevine is a summer annual weed introduced from the Mediterranean area in Europe. It has a prostrate type of growth under natural growing conditions. When growing very dense, ends of the stems turn upward and in the shade of alfalfa or similar plants, the stems grow almost erect. When growing by fences and similar obstacles, the stem may trail like a vine.

The root system of puncturevine consists of a simple taproot branching into a network of very fine rootlets. These rootlets take utmost advantage of soil moisture. The dense root system enables puncturevine to live under more intense drought conditions than most plants.

The leaves grow in pairs on opposite sides of the stem. They are composed of several pairs of small oval leaflets. The stems frequently have a reddish color. Like the leaves, they are densely covered with silky hairs.

The flowers are borne in the axils of the leaves and are bright yellow in color. The flowers are usually open only in the morning and close shortly after noon, except in cloudy weather. The fruits consist of a cluster of hard, spiny nutlets or burs. The nutlets fall apart at maturity and are adapted to dissemination by animals, rubber-tired vehicles, and the shoes of people. The individual seeds are enclosed in the horny tissue of the bur and are protected by the spines and warty protuberances on the outer side of the bur. Within the bur, the seeds lie one above the other, separated by the same hard, horny tissue that composes the outer walls of the bur. The seed nearest the pointed end of the bur is the largest and it usually sprouts first. The other seeds germinate in order of their position in the bur. If there is sufficient moisture to germinate only one of the seeds in the bur, the others may remain dormant until conditions are favorable for germination.

The prostrate type of growth and the dense root system adapts puncturevine for growth in many dry waste type areas. Generally, puncturevine is not a serious weed in intensive croplands. It is a serious problem on road shoulders, railroad rights-of-way, school grounds, barn lots, and areas normally used for parking, storage, etc.

Control: Crop competition, especially grass-type plants, will prevent the establishment of puncturevine. Grass-type crops can be selectively sprayed with 2,4-D; thus, the control problem is minimized.

Chemical weed control: 2,4-D at 1 to 2 pounds acid equivalent per acre (2 tablespoons per gallon for spot treatment) will control seedling puncturevine plants. Unfortunately, a new crop of seedlings appear following each shower or irrigation. New plants require respraying during the summer months. The plant should be sprayed with 2,4-D before the flowers appear.

Residual chemical control: Residual-type chemicals such as atrazine (AAtrex), simazine (Princep), bromacil (Hyvar X), and Fenac will control puncturevine. Timing application of the herbicide is important for effective control. The herbicide must be applied in the early spring when the moisture

is available to activate the chemical in the soil surface. Too much moisture leaches the chemical from the germinating seedling areas and makes control difficult. Usually applications of the residual type chemicals should be made in February or early March. The usual rate of application is 6 to 8 pounds product of simazine or atrazine and 4 pounds product of Hyvar X or Fenac. Respraying the areas with 2,4-D may be necessary under certain climatic conditions. There are combinations of residual-type chemicals which are effective and should be used according to label instructions.

Biological control: PunctureVine weevils (*Microlarinus lareynii* and *M. lypiformis*) have been introduced and are adapted in some sections of the United States. These weevils have been released in the Pacific Northwest but they have not adjusted to climatic conditions here. Trials will be continued on the establishment of biological control methods.

Prepared by Oregon State University Extension weed control specialists in consultation with Extension specialists at Washington State University and the University of Idaho.

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