Identification and Control of Horsenettle (*Solanum carolinense*) in Virginia

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IDENTIFICATION

A perennial from rhizomes with conspicuous spines on leaves and stems reaching 3 feet in height. Leaves are elliptic-oblong to oval, alternate, petioled, 2.5-4.5 inches long and covered on both surfaces with hairs. Leaves also emit a potato odor when crushed, and contain prominent prickles on the midvein and petiole (2). Stems are angled at the nodes, become woody with age, and also have prickles and hairs. Flowers occur in clusters and are star-shaped with 5 white to violet petals and a yellow center. The fruit is a berry, green when immature, turning yellow and wrinkled with maturity (2). All parts of the plants, except the mature fruit, are capable of poisoning livestock if eaten in sufficient quantity, however consumption rarely occurs due to the prickly stems and leaves (5).

Table 1 . Effect of postemergence corn herbicides on horsenettle control and subsequent populations (4).

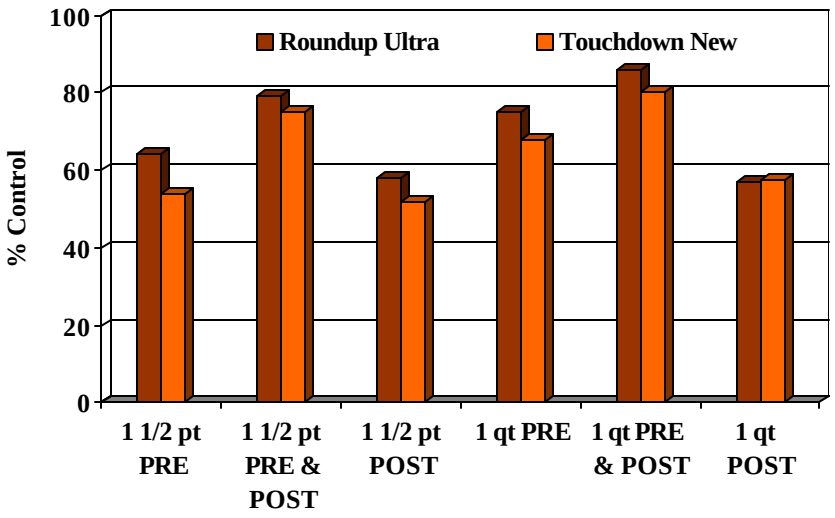
Herbicide[a]	Rate	Control[b]	Population 1 YAT[c]
		%	%
Accent	2/3 oz	40	135
Accent + Banvel	2/3 oz + 1/2 pt	64	107
Beacon	3/4 oz	68	105
Beacon + Banvel	3/4 oz + 1/2 pt	74	90
Banvel	1/2 pt	61	135
Stinger	1/3 pt	48	140

[a]Accent and Beacon treatments included a NIS at 1/4 % v/v.
[b]Control 11 weeks after treatment.
[c]Year after treatment; % of the preapplication population.

CONTROL IN CORN

As illustrated in Table 1, few postemergence corn herbicides provide acceptable short- or long-term control of horsenettle. Beacon in combination with Banvel provided the highest level of horsenettle suppression at 74%, however horsenettle populations were not reduced by any of the herbicides applied in this experiment when evaluated one year after treatment. These lower levels of horsenettle control commonly observed in corn fields are often due to a lack of translocation of these herbicides from the foliage to the root systems. Previous studies have illustrated that the maximum translocation of herbicides into the roots occurs when horsenettle plants are in the early- to mid-bloom stages of growth (5). Unfortunately, this is not a compatible time period for postemergence herbicide applications in Virginia corn production systems, as most postemergence corn applications are made from late-May to mid-June when horsenettle plants are at a much younger stage of growth. Therefore, rotation of fields to Roundup Ready® soybeans should be considered one of the most effective methods of control where severe infestations occur. In addition to the herbicides included in Table 1, similar levels of horsenettle suppression or partial control will be achieved with applications of Exceed® at 1 oz/A plus or Permit® at 2/3 oz/A plus Banvel® or Clarity® at 1/4 or 1/2 pt/A. Lastly, recent experiments conducted on severe horsenettle populations in Virginia have revealed that Callisto® will provide good to excellent control of horsenettle when applied either alone or with 1/4 pt Banvel® or Clarity®.

Figure 1 . **Influence of Roundup Ultra and Touchdown New on horsenettle control at 6 weeks after treatment (1).**



CONTROL IN SOYBEANS

The most effective option for horsenettle control in soybeans is the use of Roundup Ultra® or Touchdown New® in combination with a genetically engineered Roundup Ready® soybean variety. As illustrated in Figure 1, a sequential application of Roundup Ultra® or Touchdown New® at 1 1/2 pts or 1 qt/A provides effective control of horsenettle throughout the growing season. These levels of control are also enhanced by the competitive effects of the soybean canopy. It is critical, therefore, that soybeans be planted in narrow rows and managed intensively for maximum competitive effect.

CONTROL IN FORAGES

Research conducted at the Southwest Virginia Agricultural Research Station (Table 2) indicates that applications of Remedy® (triclopyr), Banvel® or Clarity®, and 2,4-D in combination with Banvel® or Clarity® will provide acceptable levels of season-long horsenettle control in a grass pasture. Additionally, high rates of Crossbow®, a pre-packaged mix of 2,4-D and triclopyr, affords similar levels of horsenettle control. Long-term control of horsenettle, however, is much more difficult to achieve. High rates of Remedy® or Crossbow® will provide acceptable levels of long-term horsenettle control (Table 2), however repeated applications of these herbicides over several years may be required for complete elimination of severe horsenettle infestations.

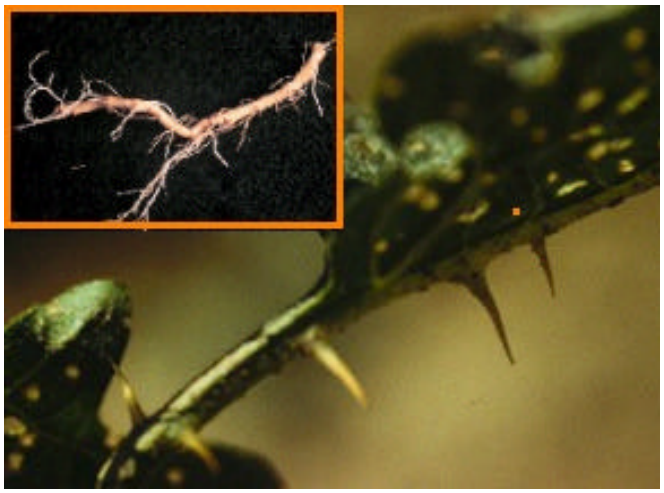


Table 2 . Horsenettle control in pastures at the Southwest Virginia Agricultural Research Station (3).

Herbicide	Rate/A	Control 3MAT[a]	Control 1YAT[b]
2,4-D	1 qt	75	64
Banvel	1/2 pt	75	56
Banvel	1 pt	95	73
Banvel + 2,4-D	1 pt + 1.5 qts	94	79
Remedy	1.5 qts	95	76
Remedy	3 qts	99	89

[a]MAT=months after treatment
[b]YAT=years after treatment

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*The use of trade names in this publication does not imply endorsement of the product named or imply criticism of similar ones not mentioned.