

WATER HEMLOCK, *CICUTA MACULATA* L., A BIENNIAL
IN INDIANA.¹

ALBERT A. HANSEN, Purdue University Agricultural Experiment Station

Water hemlock, *Cicuta maculata* L., a common plant along moist roadsides and in wet places generally throughout Indiana, is described as a perennial by practically all botanical writers. Britton and Brown state² that it is an "erect, tall, perennial glabrous herb," with several fleshy roots. According to Gray³ it is classified as a perennial.



Fig. 1. (Left) Growth of water hemlock during the spring. Note that the new growth developed from a single growing point while the other tubers are dead. (Right) Section of base of a large water hemlock plant showing the old dead tubers and the new live tubers produced by the single shoot.

The common impression among botanists is that the tubers of water hemlock carry the plant over the winter and that the food within the tubers causes new growth the following spring. A study of the development of over a hundred specimens of water hemlock when they renewed

¹ Contribution from the Botany Department (Extension Division), Purdue University Agricultural Experiment Station.

² N. L. Britton and A. Brown, Illustrated Flora of the Northern United States, Canada and the British Possessions, 2:657.

³ Gray's New Manual of Botany, p. 608.

growth during the spring shows that this does not seem to be the case under Indiana conditions.

It appears that during the winter the entire plant dies, including the tubers, but with the exception of a single bud or growing point usually located among the dead tubers at the base of the stem. This single growing point is biennial in habit while the remainder of the plant is annual.

The food stored in the tubers is evidently entirely utilized in the production of seed, since the entire structure of the tubers decomposes during the winter. When the growing point develops during the spring (fig. 1), young fresh tubers form while the old plant and tubers disintegrate and become part of the soil. No vegetative part of water hemlock remains alive for more than two years.

Water hemlock is of special interest in Indiana, since the loss of considerable stock in the state has been due to eating the poisonous tubers, while a human death attributed to water hemlock poisoning occurred in Indiana during 1923. The victim was Clyde Shady of Craigville and the facts of the case, including identification of the plant that caused the trouble, were verified by C. C. Deam, state forester.

RECENT INDIANA WEEDS, 1924.¹

ALBERT A. HANSEN, Purdue University Agricultural Experiment Station

In this paper is recorded the occurrence in Indiana of plants known to possess weedy characteristics and which are new in the state or else have recently developed troublesome tendencies. It covers the period from October 1, 1923, to October 1, 1924, and is a continuation of previously published papers on the same subject.

For assistance in verifying identifications thanks are due the Gray Herbarium of Harvard University, the Division of Economic and Systematic Botany of the United States Department of Agriculture and the New York Botanical Garden. Specimens of the plants listed have been deposited in the herbarium of the Purdue University Agricultural Experiment Station.

Slender Canada Thistle—*Cirsium arvense* (L.) Scop., var. *mite*, Wimm. and Grab. This variety of Canada thistle has been observed as a serious field weed in Henry, Grant and Blackford counties and has been received for identification from several additional counties. The general aspect of this variety is quite different from the true Canada thistle, differing principally in the taller, slenderer habit of growth, the longer, slenderer flower heads and the leaves, which are for the most part entire with numerous small spines on the margins (fig. 1). The plant usually grows to a height of about four feet when mature.

¹ Contribution from the Botanical Department (Extension Division) of the Purdue University Agricultural Experiment Station.

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