

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

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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.

Few farmers recognize this variety as Canada thistle. On a farm in Henry County a patch of this plant has infested the entire community by means of the wind-distributed seeds. Although neighboring farmers have threatened arrest under the provisions of the Canada thistle law, the owner has consistently refused to cut the patch, claiming that the plant is not Canada thistle and therefore does not come under the Canada thistle law. The variety is distributed from Pennsylvania to Iowa.

Marsh Marigold—*Caltha flabellifolia* Pursh.—This was found as a pasture weed in low ground along a ditch on the John E. Steffe farm near Warsaw. The species is called mountain marigold in the Britton and Brown Illustrated Flora because it is found principally in eastern highlands, and it has not been previously reported west of the Alleghenies. Dr. John K. Small of the New York Botanical Garden states that the Indiana plant "is like specimens of *C. flabellifolia* that grow on the Pocono Mountain, Pennsylvania, the type locality for the species."

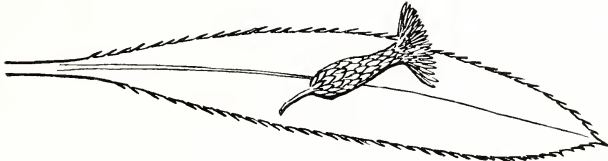


Fig. 1. Leaf and flower head of *Cirsium arvense* (L.) Scop. var. *mite*.

Musk Thistle—*Carduus nutans* L.—This species was found established in fields a few miles east of Elkhart. The plants were in full bloom on July 5, 1924. It is a European species found in waste places from Delaware, District of Columbia, Pennsylvania and New Jersey to New Brunswick and in ballast about seaports. Dr. P. A. Rydberg of the New York Botanical Garden verified the identification while C. A. Weatherby of the Gray Herbarium is of the opinion that the Indiana specimens are *C. numidicus* Coss. and Dur., a species native only in a restricted region in Algeria. He regards the occurrence of this plant as a weed in Indiana to be a striking event. *C. numidicus* is closely related to *C. nutans*, of which it is possibly a variety, and is distinguished by the comparatively broad, dilated and acute or short-acuminate upper portion of the involucre bracts.

Fluellin—*Kickxia elatine* (L.) Dumort.—This species was found growing in a field in Ohio County on September 15, 1924. Although there is no printed record of the occurrence of this plant in Indiana, C. C. Deam informed the writer that he has collected the species on the lawn of River Park, Evansville, where it grew in abundance. It is a creeping annual with the aspect of *Convolvulus arvensis* and is native in Europe and Asia. May become troublesome as a lawn weed in southern Indiana.

Crown Vetch—*Coronilla varia* L.—Collected in full flower along a roadside near Lebanon on June 25, 1924, and received for identification

on September 27, 1924, from Edward Merrill of Kokomo. According to Mr. Merrill, the plant was found growing luxuriantly in a graveyard two miles north of Sweetser, where it was first noted during 1921 and since when it has spread considerably. The writer was informed by C. C. Deam that he possesses a specimen collected by W. H. Latta, on June 20, 1923, on a roadside one mile north of Broad Ripple, Marion County. Although regarded as an incidental weed, the species is a perennial legume with handsome flowers.

Miscellaneous—A specimen of field pansy, *Viola rafinesquii* Greene, was received from County Agent C. M. East of Princeton with the notation that the plant is "a common weed in this section." In the vicinity of Blocher, Scott County, reed canary grass, *Phalaris arundinacea* L., exists as a troublesome field weed. A well established patch of *Festuca capillata* Lam., new to Indiana, was found on a roadside near LaFayette. In a field of oats on the farm of D. L. Hartsough, North Manchester, several patches of hoary cress, *Lepidium drabe* L., a new and serious grainfield weed in Indiana, were found. Mr. Hartsough stated that the patches were first noted two or three years ago and they have resisted all attempts at eradication.