

Common
Poisonous
PLANTS



by John M. Kingsbury

Information Bulletin 104

A Cornell Cooperative Extension Publication

Revised and reprinted in 1994 with technical assistance
from Edward A. Cope, L.H. Bailey Hortorium.

A Cornell Cooperative Extension Publication



Cornell Cooperative Extension *Helping You Put Knowledge to Work*

Produced by Media Services at Cornell University

This publication is issued to further Cooperative Extension work mandated by acts of Congress of May 8 and June 30, 1914. It was produced with the cooperation of the U.S. Department of Agriculture; Cornell Cooperative Extension; the College of Agriculture and Life Sciences, College of Human Ecology, and College of Veterinary Medicine, at Cornell University. Cornell Cooperative Extension provides equal program and employment opportunities.

180IB104 335/450 Rev1/94 7M ML E20614G

Printed on recycled paper

Contents

Poisonous Cultivated Plants	4
House Plants	4
Flower Garden Plants	6
Vegetable Garden Plants	10
Ornamental Plants	12
Poisonous Wild Plants	14
Trees and Shrubs	14
Poisonous Plants Commonly Found in Wooded Areas	15
Poisonous Plants Commonly Found in Swamps or Moist Spots	19
Poisonous Plants Commonly Found in Fields, Meadows, Pastures, and Roadsides	21
Having Suspected Plants Identified	27
The Walter C. Muenscher Poisonous Plants Garden	28

*Drawings by Elfriede Abbe, Helen Hill Craig, and
Marion Ruff Sheehan*

Photography by Dede Hatch

Cover photo: Daphne (*Daphne mezereum*)

Common Poisonous Plants

by John M. Kingsbury, professor emeritus of botany,
Division of Biological Sciences, Cornell University

A poisonous plant may contain any one or more of hundreds of different poisonous principles from nearly a score of major groups, including alkaloids, glycosides, saponins, resinoids, oxalates, nitrites, and poisonous minerals. The toxic substance causes a definite illness when taken into the body of an animal. More than 700 species of plants in the United States and Canada are known to have caused illness at one time or another, and the list undoubtedly is not complete. Common though it is, wisteria was first found to be toxic in 1961. No pattern of relationship, geographical distribution, habitat, seasonal appearance, or plant part can be used successfully to separate poisonous plants from those that are harmless.

Poisonous plants are everywhere. Trying to eradicate them from a particular spot usually is impractical. Instead, one should learn to recognize the important ones and be aware of the way in which they may cause trouble. Whether poisoning will take place usually is determined more by the habits of people or the management of animals than by the presence of a particular poisonous plant.



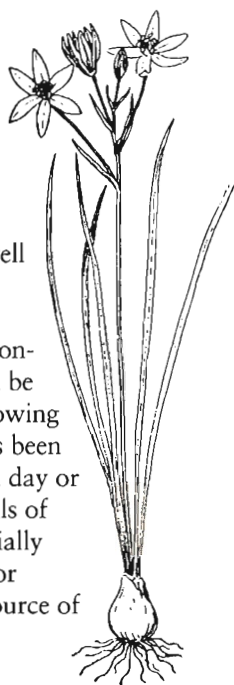
Eastern lupine

The danger in a poisonous plant depends mainly on whether it is likely to be eaten. The attractiveness of a plant is much less easily measured than its availability. Children tend to be attracted to berries and fleshy plant parts. Every child should be taught never to eat any part of a plant or any berry not commonly used as food. Wild food plants, wild greens, or herb-like plants attract adults. Animals often eat considerable quantities of clippings or prunings that they would not touch if the materials had not been thrown to them. Swine are particularly vulnerable to poisoning from plants thrown into garbage, but fortunately, pigs vomit easily.

There are few true antidotes for poisoning by plants. The United States Public Health Service says, "For all practical purposes, treatment of poisoning by plants is symptomatic and supportive; no generally accepted antidotal agents are available." Treating symptoms in a human being should be undertaken only by a physician. It is not always safe even to induce vomiting. A few plants contain juice so corrosive that the walls of the digestive system are weakened and may be ruptured by the strong muscular contractions involved in vomiting. Under other circumstances, vomiting may result in asphyxiation.

The first rule in cases of suspected poisoning is to call a physician. For similar reasons, a veterinarian should be called in all cases of severe poisoning of animals.

Poisoning by plants sometimes is difficult to separate from poisoning by contaminated well water, agricultural lubricants, paint, insecticides, fungicides, herbicides, fertilizers, and other agricultural chemicals. Whenever poisoning has occurred, all pertinent details should be written down before they are forgotten. Knowing where a person has been, what he or she has been doing, and what meals were consumed for a day or two before symptoms appeared, or the details of management and feeding of livestock (especially changes in them), often helps the physician or veterinarian immeasurably in locating the source of



Star-of-Bethlehem

poison. When death occurs, much useful information may be obtained from examining the internal injuries. Farmers should cooperate readily with veterinarians who wish to conduct a postmortem examination under such circumstances. The information obtained may prevent further loss.

Physicians and veterinarians cannot be expected to recall the symptoms and treatment of poisoning for each of the several hundred poisonous plants. They can get this information quickly by telephone from the nearest poison control center if they know the name of the plant involved. Therefore, the most important precaution that can be taken by the farmer or home owner against fatal plant poisoning is to know the names (preferably the scientific names) of the poisonous plants on his or her land or in the neighborhood. This bulletin will help. Other sources of help in identifying poisonous plants are discussed on page 27.

The plants described on the following pages are commonly found in New York State. They are organized into groups based on their availability, and suggesting their relative attractiveness.

Poisonous Cultivated Plants

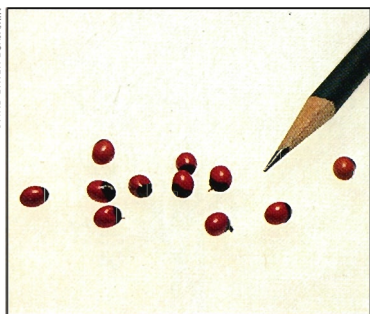
House Plants

Some members of the lily and lily-like amaryllid groups are poisonous. The most common are **hyacinth** (*Hyacinthus orientalis*) and **narcissus** or **daffodil** (*Narcissus* species). The bulbs of these plants cause intense digestive upset in humans and animals. One case showed that a small amount of narcissus bulb will produce poisoning in humans. In the Netherlands livestock were poisoned when given bulbs of these plants as emergency feed during the Second World War. **Climbing** or **glory-lily** (*Gloriosa superba*) contains poisonous principles that produce digestive upset accompanied by symptoms of nervous excitement. Some **amaryllis** (*hippeastrum*), **crinum**, **nerine**, and other amaryllid plants contain poisonous principles.

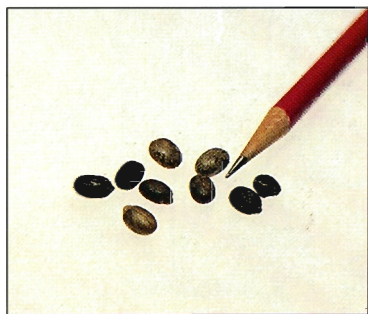
Oleander (*Nerium oleander*) is particularly dangerous. A single leaf can be a lethal dose for children. Oleander, which is a common outdoor woody shrub in warmer parts of the country, is grown occasionally as a large potted plant in New York State. Its flowers are showy and very fragrant, but the belief that their perfume is dangerous is unfounded. Oleander contains a poisonous principle similar to digitalis in its effect on the heart and it also produces severe digestive upset. Meat skewered on oleander branches has killed many human beings. **Poinsettia** (*Euphorbia pulcherrima*) is closely related to the spurges and, like them, contains an acrid, burning juice that may cause severe injury to sensitive tissues in the digestive system.

Dumbcane (*Dieffenbachia seguine*, *D. picta*) and other members of the arum family such as **caladium** (species of *Caladium* and *Xanthosoma*) and **philodendron** (*Philodendron* species) contain small needle-like crystals of calcium oxalate. Biting these plants embeds the crystals in the tissues of the tongue and mouth, resulting in intense burning and irritation which are uncomfortable but not dangerous. Death can occur, however, if irritation causes the base of the tongue to swell enough to block the air passages of the throat.

Rosary pea or **precatory bean seeds** (*Abrus precatorius*) and **castorbean seeds** (*Ricinus communis*) are sometimes found in the home. Each is extremely dangerous. A single precatory bean seed has caused death, and one or two castorbean seeds are near the lethal dose for adult human beings. Both are warm climate plants, but castorbeans are sometimes grown in annual flower gardens in New York State. Castorbean seeds are available at most garden supply stores and often at general stores and food markets. Unplanted seeds should not be left in the house where children may eat them. The seeds of precatory bean are very attractive. Each is ovoid, about the size of a pencil eraser, and brightly colored as though enameled in Chinese red and jet black. In tropical countries they are used in necklaces and other ornaments. Tourists have brought thousands into the United States. Castorbean seeds are sometimes used for necklaces, too.



Rosary pea seeds



Castorbean seeds

Mistletoe is found in many homes at Christmas. Both European mistletoe (*Viscum album*) and common American mistletoe (*Phoradendron flavescens*) are believed to be quite poisonous, and the berries of the latter are known to contain an active toxic principle.



Larkspur

Flower Garden Plants

Larkspur (*Delphinium* species) and **aconite** or **monkshood** (*Aconitum* species), of which the most common are *Aconitum napellus*—garden monkshood, *Delphinium ajacis*—an annual larkspur, *D. cheilanthum* and *D. elatum*—perennial larkspurs, frequently are planted in flower gardens. Aconite has long been recognized as a poisonous plant in Europe, and wild larkspurs are among the most dangerous of western range plants. The cultivated larkspurs also are suspected of being poisonous. The alkaloids that they contain produce digestive upset and symptoms of nervous excitement or depression. The main danger from these plants is in throwing cuttings to livestock, but the fleshy roots of some may attract children. Especially potent roots produce a tingling sensation in the mouth when chewed.



Monkshood

Lupines (*Lupinus* species), of which there are many, cause much loss of livestock in the West. Eastern lupine (*L. perennis*), which may be found wild in New York State, contains dangerous alkaloids, but no cases of poisoning from it have yet been reported. A common garden lupine, *L. polyphyllus*, has yielded alkaloidal extracts that have proven toxic in experiments with laboratory animals. Monkshoods, larkspurs, and lupines in the garden should be treated as potentially dangerous, especially for livestock.

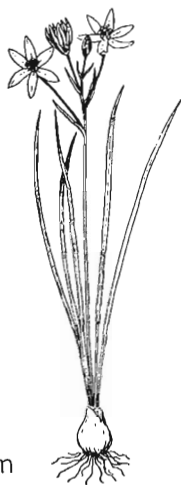


Eastern lupine

Hyacinth, narcissus, and other common lily-like houseplants discussed above are also found in the flower garden. Additional dangerous lily relatives frequently found in flower gardens include **autumn crocus** (*Colchicum autumnale*), **star-of-Bethlehem** (*Ornithogalum umbellatum*), **lily-of-the-valley** (*Convallaria majalis*), and **snowdrops** (*Galanthus nivalis*). With the exception of lily-of-the-valley, these are all bulbous plants and the bulb is the dangerous portion. The bulbs contain alkaloids that produce nervous symptoms and digestive



Autumn crocus



Star-of-Bethlehem

distress. The bulbs are especially inviting to children, but also have caused extensive losses to livestock. This is especially true of star-of-Bethlehem, which has become naturalized as an onion-like weed of grasslands and thickets in some areas. The bulb may be brought to the surface by plowing, frost heaving, or by the rooting of hogs.

Lily-of-the-valley contains active principles similar to those in digitalis, and produces similar effects on the heart. It is also purgative. The plants usually form dense populations if not disturbed. Such clumps are very persistent, and often are found in the woods about the cellar holes of abandoned farms. Lily-of-the-valley produces bunches of conspicuous large red berries in late summer.



Lily-of-the-valley



Snowdrops

Biochemists and medical researchers recently have become interested in **ornamental sweet pea** (*Lathyrus odoratus*). They have found that seeds of this and other species of sweet pea produce skeletal deformity when fed in relatively large amounts to laboratory animals. The toxic principle has been isolated and bears an interesting relationship to the toxic principles in a few other closely related legumes. It is unwise to eat the seeds of any legumes other than those commonly used as food without first obtaining authoritative information about their potential toxicity.

Christmasrose (*Helleborus niger*) is poorly named. It is a member of the buttercup family, not a rose, and it blooms in late fall or early spring. It has been recognized as poisonous since the time of the Greeks and Romans, and produces severe purgation if eaten. The fleshy underground portions of irises (*Iris* species) are sometimes attractive to humans and animals as food. Some, if not all, irises cause severe, but usually not serious, digestive upset.



Christmasrose

Several horticultural varieties of digitalis or **foxglove** (*Digitalis purpurea*) are commonly grown in flower gardens. The plant from which these varieties were developed is the source of the drug digitalis, which is one of the most important medicines available to physicians. Used in small amounts, it increases the force of contraction in a weakened heart. In larger amounts, the active principles cause dangerously irregular heartbeat and pulse, usually accompanied by digestive upset and mental confusion. Fresh or in hay, the plant is dangerous to livestock; and it is dangerous to humans who foolishly attempt self-treatment with decoctions from it.



Foxglove

Most **poppies** (species of *Papaver*) and **bleeding heart** or **Dutchman's breeches** (species of *Dicentra*) contain alkaloidal principles chemically related to morphine and other constituents of opium. Opium is derived from **opium poppy** (*Papaver somniferum*), which was widely planted in flower gardens at one time; its cultivation is now illegal in New York State and subject to heavy penalty. Opium consists of a complex mixture of alkaloids. The mixture of alkaloids in other poppies and bleeding heart plants is not identical and does not produce the same effects as opium. Nevertheless, it is wise to consider all of these plants potentially dangerous. Some of the wild species of *Dicentra* (especially *D. cucullaria*—Dutchman's breeches) grow in pasture areas and have caused loss of life in livestock. They form new growth very early in the spring before other green feed has appeared.



Dutchman's breeches

Vegetable Garden Plants

Enough danger exists in some of the most common vegetable plants to warrant discussing them. **Potato** (*Solanum tuberosum*) is very closely related to **black nightshade** (*Solanum nigrum*) and other nightshades. Members of this group contain a chemically complex, alkaloidal poisonous principle that can cause intensive digestive disturbances and nervous symptoms. The alkaloid is contained in all parts of the plant, but is concentrated in the vines and green tissues. Normal, healthy potato tubers are harmless, even if eaten in very large amounts, but there is some danger in the green “sunburned” spots of potato tubers that have grown at the surface of the ground, in sprouts, and in rotting potatoes. Sprouts and sunburned portions of potatoes should be removed and discarded. Sprouts, vines, and rotted potatoes should not be fed to animals. If large amounts of culled or withered potatoes are to be fed to swine, cooking them will add a margin of safety by destroying some, but not all, of the toxicity.

Tomato (*Lycopersicon esculentum*) is closely related to potato, and there is some evidence that the vines may be poisonous to livestock if fed in large amounts. The tomato fruit is harmless.

Of all the plants of the vegetable garden, **rhubarb** (*Rheum rhaponticum*) may be the most dangerous because persons occasionally use the leaf blade for food. The stalk of the leaf or petiole (the part normally used as food) is harmless, but the blade has been responsible for many human deaths. The blades are equally poisonous to swine and should not be disposed of in garbage for hogs.

Accidental poisonings and experimental investigations have shown that a diet of **onions** and practically nothing else for several days or longer will destroy red blood cells in the body. Humans have never been poisoned in this way because they never live on a diet of onions alone, but poisoning has occurred in livestock that have been fed large amounts of culled onions.



Rhubarb



Rhubarb

Ornamental Plants

Daphne (*Daphne* species) is among the most dangerous of shrubs. Several similar species are planted as ornamentals, and one (*D. mezereum*) occasionally has become naturalized in thickets in the Northeast. Small, showy purple or white flowers are produced along the stems of the plants very early in spring before the leaves appear. The flowers are followed by small red or yellow berries that are extremely corrosive and will produce severe burns in the mouth and digestive tract. Just a few of the berries are enough to kill a child. Their danger to young children is greater because they may swallow the berries instead of spitting them out when they sting in the mouth.



Daphne

Wisteria (*Wisteria* species) and **goldenchain** (*Laburnum anagyroides*) are both members of the legume family. The former is usually grown as a vine, and the latter as a tree or large shrub. Both produce hanging clusters of showy flowers that are followed later in the season by pods. A few seeds from wisteria pods have produced mild to severe digestive upsets and hospitalization of several children in recent years, although no fatalities have been reported. Goldenchain, which produces symptoms of excitement, staggering, convulsions, and coma, has caused much trouble in Great Britain.

Several species of **mountain laurel** (*Kalmia* species), **rhododendron** (*Rhododendron* species), and **pieris** (*Pieris japonica*) have caused loss of life in livestock. The Delaware Indians used laurel for suicide; zoo animals have been killed by well-meaning persons who fed them branches from ornamental plantings of laurels; cemetery wreaths have been lethal to livestock; and wild laurels have poisoned livestock on pasture. All of these plants contain the same poisonous compound that produces nausea and vomiting, depression, difficult breathing, prostration, and coma. Although some species have not been proven dangerous, it is well to consider all the members of the laurel-rhododendron-azalea group of plants potentially toxic.

Horsechestnut (*Aesculus hippocastanum*) is closely related to the **buckeyes** (*Aesculus* species), which have poisoned livestock in other parts of the United States.

Horsechestnut has been considered dangerous, but on little real evidence. The buckeyes (plants or nuts) produce irregularity of gait, excitement, and loss of coordination in livestock.

Yew (*Taxus* species) is sometimes used in hedges or as an individual ornamental plant. The alkaloid contained in yew depresses heart action. Death from this plant usually is sudden, without warning symptoms. The bright red, fleshy berries along the twigs are attractive to children, but fortunately are less toxic than the foliage. Most cases of death occur in livestock that have been fed clippings from yew hedges. One native species, **ground-hemlock** (*T. canadensis*), which grows in ravines and on wooded shaded slopes, closely resembles true hemlock. Two whitish stripes, one on each side of the midvein, are found on the

undersurface of true hemlock needles. Yew or ground hemlock needles are greenish-yellow on the underside and have no white stripes.

Other hedge plants whose clippings are dangerous to livestock are **box** (*Buxus sempervirens*) and **privet** (*Ligustrum vulgare*). In moderate amounts, both cause mild to severe digestive upsets that may result in death.



Box



Privet



Horsechestnut



Yew

Poisonous Wild Plants

Trees and Shrubs

Only a few shrubs and trees are dangerous. In addition to the laurels and horsechestnut, which have already been described, **wild and cultivated cherries** (*Prunus* species), **oaks** (*Quercus* species), and **black locust** (*Robinia pseudoacacia*) are dangerous.

Cherry twigs and foliage contain a compound that releases cyanide when eaten. Another product formed simultaneously in this process is oil of bitter almonds. Cyanide itself is odorless, but the smell of almond oil (which is not poisonous) may often be detected in bruised cherry stems, and indicates the presence of large amounts of cyanide. Even when this characteristic odor is absent, foliage and twigs of cherries may be dangerous.

Wilted cherry foliage is only slightly more dangerous than fresh. Several wild cherry species are very common, and livestock are frequently poisoned. Cyanide acts rapidly (symptoms often appear within minutes). An effective antidote can be administered by a veterinarian or physician if given in time. Cyanide poisons the breathing mechanism at its most fundamental level. Gasping, excitement, and prostration are common symptoms.

Poisoning from oaks is caused by an unknown compound in the foliage, and sometimes in the acorns, which causes gradual kidney damage in livestock. The disease appears only after the damage has taken place, which may require several days, weeks, or even longer. Little can be done for poisoned animals by that time. Cases of poisoning in New York State may result from livestock browsing on large amounts of fallen leaves and acorns, or on felled oaks.



Black Locust

Black locust also is a common plant that some farmers have planted as a source of rot-resistant fence posts. Livestock can be poisoned by the bark, by sprouts, or, less often, from the foliage. Children have been poisoned from chewing the bark and the seeds. The nature of the poisonous principle has not yet been determined but the symptoms include nausea, weakness, and depression.

Elderberry (*Sambucus* species) is a weakly poisonous plant that may produce nausea and digestive upset. The roots are the most potent part of the plant, and the berries the least; cooked berries appear to be harmless. Both livestock and children have been poisoned from eating the plants, and children have been poisoned from using pieces of the pithy stems for blowguns.

Poisonous Plants Commonly Found in Wooded Areas

A number of poisonous wild plants usually are found in wooded areas. Wild Dutchman's breeches, discussed on page 9, and **jack-in-the-pulpit** (*Arisaema* species) are examples. Like dumbcane (see page 5), jack-in-the-pulpit contains oxalate crystals. **Bloodroot** (*Sanguinaria canadensis*), from which poppy alkaloids may be obtained, should be avoided. The **baneberries** (*Actaea* species), related to buttercups, also contain irritant sap that may cause intensive digestive upsets if eaten.



Jack-in-the-pulpit



Bloodroot



White baneberry

Moonseed (*Menispermum canadense*) is rare, but is dangerous because it closely resembles wild grape in all major ways, and persons may mistake its blue-purple berries for grapes. Moonseed berries do not taste like grapes, however, and each contains a single, relatively large, crescent-shaped seed. True wild grapes contain several small, ovoid seeds.

Mayapple (*Podophyllum peltatum*) is a very common plant found in meadows, along roadsides, and in woods, and is easily recognized by its one or two umbrella-like leaves. The plant contains at least 16 active toxic principles, primarily in the roots. The major symptom of poisoning is severe digestive upset. Children often eat the apple, which has a mildly pleasant flavor, with no bad effect, but on other occasions, eating several apples may cause an attack of diarrhea. Animals are occasionally poisoned by the foliage.



Mayapple



Moonseed

White snakeroot (*Eupatorium rugosum*) is a very destructive poisonous plant. In Colonial times, when the disease it produced was called milk sickness, it is known to have killed as many as half the persons in a settlement. Its unique poisonous principle collects in the milk of cows that have eaten the plant. The cows themselves sometimes show only mild symptoms (mainly trembling), but persons drinking the milk may be severely poisoned or killed. In humans, the major symptoms of poisoning are weakness and prostration. The poisonous principle causes an upset in the way the body uses carbohydrates, and the odor of acetone is usually present in the breath of poisoned humans and cattle.



For the average person, white snakeroot is difficult to identify. There are about 30 other white-flowered species of *Eupatorium*, but only the one is dangerous. Look particularly for its more or less heart-shaped, stalked leaves inserted opposite each other on the stems. Each leaf is thin or membranaceous and has three major veins that project slightly from the under surface. White snakeroot grows in open woods or along the edges of wooded areas. The plants may persist and increase in number for a few years in areas that have been logged off, but eventually die in unshaded areas. Today there is little danger of poisoning; animals rarely eat the plant unless they are very hungry; the plants will not persist in open pastures; milk from cattle showing symptoms of any kind is rarely used for human consumption; and even if milk containing the principle is used, it is greatly diluted with milk from other cows and other herds before being bottled.

White snakeroot

Bracken fern (*Pteridium aquilinum*) often poisons cattle and horses, but the diseases it produces in each are different. Bracken contains an enzyme that destroys vitamin B₁ (thiamine) in the diet. After a few weeks or months, horses use up their reserves of this vitamin and begin to display the nervous symptoms characteristic of B₁ deficiency. Treatment with B₁ is immediately effective. On the other hand, cattle never develop B₁ deficiency from eating bracken. The bacteria in the rumen manufacture enough B₁ to prevent a shortage. Instead, a second poisonous principle in bracken slowly destroys the tissue of the bone marrow in cattle. The chief function of bone marrow is to manufacture blood cells. Disruption in the components of blood produces a disease in which cattle bleed to death. Small blood vessels leak

blood into the tissues. Large amounts of blood accumulate in the lower digestive system, and are passed with the feces. Bleeding from the nostrils or eye sockets also is common. Veterinarians treat the disease with one of the antidotes found effective for treating radiation damage in humans. Horses are usually poisoned by bracken in hay or bedding, and cattle from bracken in pastures in late summer or fall when forage is scarce. Bracken grows in open woods and in upland meadows and pastures.

Some of the most dangerous mushrooms are inhabitants of woods. The subject of mushroom toxicity is beyond the scope of this publication. The only unfailing rule for safe use of wild mushrooms is to discard all whose identity is the least uncertain, and to use only those well-known to be safe.



Bracken fern

Poisonous Plants Commonly Found in Swamps or Moist Spots

Spotted water-hemlock (*Cicuta maculata*), the most violently poisonous plant in New York State, is found only in wet areas—swamps, marshes, low moist soils, or along stream banks. The following points will help in recognizing it. The base of the stem is swollen, and several (rarely one) tuberous, irregularly surfaced taproots, much like a cluster of small dahlia roots are attached to it. Each fleshy root is an inch or two long. Slice the base of the stem lengthwise to the point where the roots are attached. In

young plants the pith in this region displays many parallel yellow lines running horizontally across the cut surface. In older plants these lines, which represent diaphragms of denser tissue in the pith, may be separated by hollow cavities in the pith. Small drops of yellow sap may collect on the cut surfaces of young stems or roots.

Each spotted water-hemlock leaflet has a toothed edge, and a single midvein running the length of the leaflet. The secondary veins arise from the main vein and run to the edge of the leaflet, *ending in the notches between the teeth* (in similar plants they run to the point of the tooth).

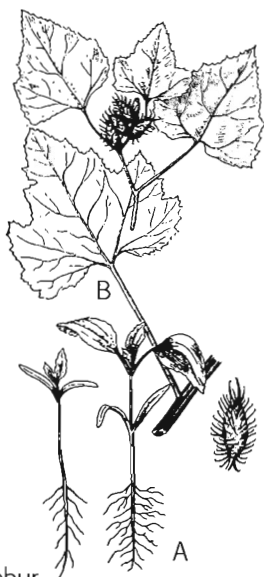
During parts of the year, the fleshy roots of water-hemlock contain an extremely potent poison. One root is sometimes enough to kill a cow. Repeatedly, both livestock and humans have been killed in New York State by the chemically unique poisonous principle which causes

extremely violent and painful convulsions. Because children are attracted to the fleshy roots and find them not unpleasant in taste, this plant should be eradicated from areas where children may find it.



Spotted water-hemlock

Cocklebur (*Xanthium strumarium*) also contains a unique poisonous principle. The seeds contain the toxic substance, but they are formed in spiny burs which are not eaten. The toxic principle is transferred into young seedlings that are quite poisonous to livestock, especially swine (A). As the plants grow, they become less toxic, and by the time the first true leaves are fully formed, the plants are harmless (B). Symptoms of poisoning in swine include nausea, depression, and weakness. Because its seeds germinate after being soaked in water, cocklebur is usually found along the shores of ponds where water has receded from the margins. New crops of seedlings appear from spring to fall as the pond evaporates and more shore is exposed. Cocklebur is especially dangerous around farm ponds where livestock are watered.



Cocklebur

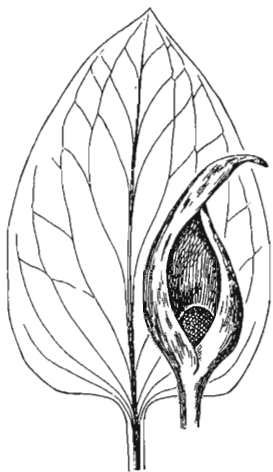
Marshmarigold (*Caltha palustris*) is related to buttercup and contains a similar irritant sap. **Skunkcabbage** (*Symplocarpus foetidus*), like dumbcane, contains oxalate crystals that may burn the mouth. Wild lobelias (**Indian-tobacco**—*Lobelia inflata*; **cardinal flower**—*L. cardinalis*; and **great lobelia**—*L. siphilitica*) contain alkaloids that would be poisonous if eaten. They have been used in medicine, but cases of poisoning from the plants have not been reported.

Arrowgrass (*Triglochin maritima*) may be found in salt, brackish, and freshwater marshes in scattered localities throughout the state.

Arrowgrass may contain dangerous levels of cyanide potential but, because of its typical habitat, is unlikely to produce poisonings.



Marshmarigold



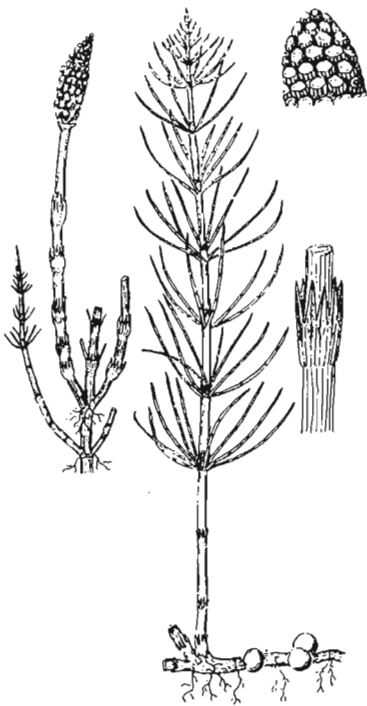
Skunkcabbage



Indian-tobacco

Poisonous Plants Commonly Found in Fields, Meadows, Pastures, and Roadsides

Horsetail (*Equisetum arvense*) and **sensitive fern** (*Onoclea sensibilis*) often grow together. Although they favor moist spots, they are widely distributed in many habitats. Sensitive fern in hay has caused brain damage and death in horses, but cases are rare. Horsetail, like bracken, contains a substance that destroys vitamin B₁ in the diet and eventually causes symptoms of B₁ deficiency in horses and other animals lacking rumens.



Horsetail

False hellebore (*Veratrum viride*) is found in the low spots of fields and woods. Because the plant appears early in the spring just after skunkcabbage, the two are often confused. Hellebore has large leaves that are accordion-folded lengthwise, and lack the characteristic odor of skunkcabbage. Hellebore contains alkaloids that depress blood pressure, and are used for that purpose in medicine.

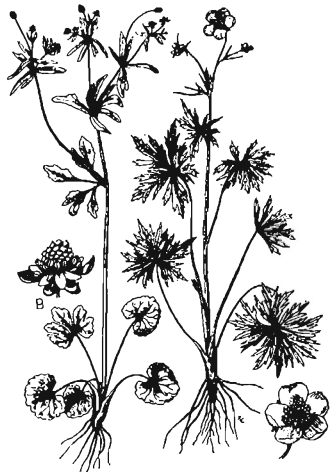


False hellebore

Buttercups (*Ranunculus* species) and **spurges** (*Euphorbia* species) contain irritant juices that severely injure the digestive system. Usually these plants are untouched by pastured animals, but sometimes livestock consume them in the absence of other forages. Because the poisonous principle in buttercup is unstable and disappears quickly, it is not dangerous in hay. Spurges have caused severe burns on the skin about the feet of horses used to mow these plants.



Leafy spurge

Small flowered buttercup (left)
Tall field buttercup (right)

All members of the nightshade family, including **henbane**, **jimsonweed**, and others, can be called nightshades, and most are deadly. The term, deadly nightshade, makes a poor common name. The **nightshades** proper (species of *Solanum*), all contain the same poisonous principle discussed under potato

(page 10). Some of the common wild nightshades bear red or black berries (like tiny tomatoes) that are attractive to children. Fortunately the ripe berry is the least toxic part of the plant and rarely produces severe poisoning. Nevertheless they should not be eaten, and animals should be kept away from the foliage.



Black nightshade, A to C; Buffalobur, D and E; Horsenettle, F and G; and Bitter or trailing nightshade, H to K

Corn cockle (*Agrostemma githago*), bouncing bet (*Saponaria officinalis*), and cow cockle (*Saponaria vaccaria*) contain a poisonous principle that injures the wall of the digestive system, and thus gets into the blood stream where it destroys red blood cells. Corn cockle is a weed of wheat fields, and its seeds sometimes get into home-grown grains. When fed to poultry or livestock, the seeds may be refused; but if not, will cause severe digestive upsets or death. Seeds and foliage of cow cockle and bouncing bet, which are common meadow weeds, produce the same reactions as corn cockle.



Poison-hemlock (*Conium maculatum*) looks like wild carrot (*Daucus carota*), but is larger. Both are common weeds. Poison-hemlock was introduced from Europe many years ago and now forms luxuriant stands along roadsides, in waste areas, and elsewhere. It can be distinguished from wild carrot by the absence of hairs along the stalks of the leaves, which are always found on wild carrot leaves. An extract from poison-hemlock was used to put Socrates to death. The foliage and seeds contain at least five alkaloids. These compounds cause nervous excitability, staggering, and depression of vital functions in humans and animals. Death is not uncommon. The seeds may be used by mistake as herb seeds from other members of the carrot family.



Poison-hemlock

Thornapple, also called **stramonium** and **jimsonweed** (*Datura* species), is a weed of open areas and rich soils. It is often found in barnyards, but cases of livestock poisoning are fewer than cases of human poisoning because animals rarely touch it. Children have been poisoned from sucking nectar from the long, tubular flowers, or from eating the seeds from the large spiny pods. Many deaths have resulted from drinking tea made from the leaves or pods of this plant in the belief that it will relieve asthma and other ailments. Symptoms of thornapple poisoning include abnormal thirst, distorted sight, delirium, incoherence, and coma.



Jimsonweed

Greater celandine (*Chelidonium majus*), **pokeweed** (*Phytolacca americana*), and **dogbane** (*Apocynum* species) are potentially dangerous but rarely troublesome. The first contains poppy alkaloids. The last is related to oleander, but has less potent toxic characteristics. Pokeweed bears clusters of deep purple or jet black berries that are sometimes eaten, but they are the least toxic part of the plant; the mature foliage and roots contain a poisonous principle that may produce severe digestive disturbances if eaten. The fleshy roots are particularly dangerous to hogs who may root them up.



Greater celandine



Pokeweed

Although it has been legally controlled for many years, **hemp** or **marihuana** (*Cannabis sativa*) is still found wild in some places. Persons who, knowingly or otherwise, allow it to grow or who keep parts of this plant on their property are guilty of a serious infraction of state and federal laws, punishable by fine and jail sentence. The plant is rarely poisonous to livestock, which normally refuse to eat it.

St. Johnswort (*Hypericum perforatum*) contains a pigment that enters the bloodstream of animals that have eaten it. When it gets to the blood vessels in the skin, it reacts with sunlight and causes the vessels to leak. Blood serum collects under the skin where this reaction has taken place, often producing a watery swelling and, in severe cases, killing the skin. The dead skin sloughs off, leaving raw, painful areas that are sometimes several feet across on a cow, and which usually become infected. Sheep may lose the tips of their ears or their lips, and in the latter case, may starve to death. The early stages of the disease are similar to sunburn. Leaves of St. Johnswort are speckled with tiny black dots that are translucent when held to the light.

Farm ponds and other bodies of water where livestock are watered often form dense accumulations of **pond scums** (algae), some of which are highly toxic to animals. Toxic blooms consist of dense masses

of very tiny organisms usually collected along one shore by the action of a prevailing wind. The water becomes paint-like and millions of just-visible particles may be found in it, giving it a characteristic green or blue-green color. If, on the other hand, the bloom consists of thread-like plant material, it is not dangerous. Not all blooms composed of fine particles are toxic, but only a specialist can distinguish them. Therefore, it is best to keep animals away from waters containing blooms of the kind described. Control of aquatic weeds and algae in farm ponds is discussed in Cornell Cooperative Extension Information Bulletin 107 *Aquatic Plant Management and Control*.

Several common agricultural crops may cause trouble with livestock on rare occasions. Those most apt to do so include **spoiled sweetclover hay**, **sorghums**, **sudan grass**, and **some clovers**.



St. Johnswort

Having Suspected Plants Identified

Cornell's taxonomic botanists will identify a limited number of plants suspected of being poisonous if these directions are followed: Pick a typical specimen with flowers, fruits, leaves, buds, and stem, or as many of these parts as possible. In the case of trees or shrubs, describe the general size and shape of the plant. In most cases, it is best to dry the specimen before mailing it. Spread the plant (leaves and flowers unfolded) between sheets of newspaper, weight the paper with a book or pile of magazines, and place it in a warm, airy location until the plant is dry. Dry specimens are brittle, and should be placed between sheets of cardboard for mailing. Specimens that will not decay, mold, wither severely, or be damaged by freezing may be mailed fresh, but should be marked "living specimen for identification."

A letter telling the specimen's locality (town and county), habitat (pasture, roadside, open woods, swamp, flower garden), date collected, and whether common or rare, should be attached to the package. If more than one specimen is sent, tag each with an identifying number. Keep a duplicate numbered specimen because those mailed will not be returned. If the specimen has caused poisoning, give as complete and clear a description as possible of the symptoms and type of injury it caused. Whenever possible, submit the physician's or veterinarian's description of clinical signs and lesions. Mail to: Extension Botanist, L. H. Bailey Hortorium, College of Agriculture and Life Sciences, Ithaca, NY 14853.

The Walter C. Muenscher Poisonous Plants Garden

The Cornell Plantations, the New York State College of Veterinary Medicine, and the New York State College of Agriculture and Life Sciences maintain a teaching collection of living plants that are poisonous primarily to livestock. The garden is located behind James Law Auditorium of the College of Veterinary Medicine. Each specimen is labeled with its scientific name, a common name, and the name of the plant family to which it belongs. Visitors are welcome to inspect the collections at any time.



St. Johnswort



White Snakeroot



Horsetail

N O T E S



Monkshood

PLANT ILLUSTRATION LIST

Autumn crocus	<i>Colchicum autumnale</i>	7
Bitter or trailing nightshade	<i>Solanum</i> spp.	23
Black locust	<i>Robinia pseudoacacia</i>	14
Black nightshade	<i>Solanum</i> spp.	23
Bloodroot	<i>Sanguinaria canadensis</i>	15
Box	<i>Buxus sempervirens</i>	13
Bracken fern	<i>Pteridium aquilinum</i>	18
Buffalobur	<i>Solanum</i> spp.	23
Castorbean seeds	<i>Ricinus communis</i>	5
Chokecherry	<i>Prunus</i> spp.	14
Christmasrose	<i>Helleborus niger</i>	8
Cocklebur	<i>Xanthium strumarium</i>	20
Corn cockle	<i>Agrostemma githago</i>	24
Daphne	<i>Daphne</i> spp.	12
Dutchman's breeches	<i>Dicentra cucullaria</i>	9
Eastern lupine	<i>Lupinus perennis</i>	1,7
False hellebore	<i>Veratrum viride</i>	22
Foxglove	<i>Digitalis purpurea</i>	9
Greater celandine	<i>Chelidonium majus</i>	25
Horsechestnut	<i>Aesculus hippocastanum</i>	13
Horsenettle	<i>Solanum</i> spp.	23
Horsetail	<i>Equisetum arvense</i>	21,28
Indian-tobacco	<i>Lobelia inflata</i>	21
Jack-in-the-pulpit	<i>Arisaema</i> spp.	15
Jimsonweed	<i>Datura</i> spp.	25
Larkspur	<i>Delphinium</i> spp.	6
Leafy spurge	<i>Euphorbia</i> spp.	22
Lily-of-the-valley	<i>Convallaria majalis</i>	8
Marshmarigold	<i>Caltha palustris</i>	20
Mayapple	<i>Podophyllum peltatum</i>	16
Monkshood	<i>Aconitum</i> spp.	6
Moonseed	<i>Menispermum canadense</i>	16
Poison-hemlock	<i>Conium maculatum</i>	24
Pokeweed	<i>Phytolacca americana</i>	25
Privet	<i>Ligustrum vulgare</i>	13
Rhubarb	<i>Rheum rhaponticum</i>	11
Rosary pea (precatory bean) seeds	<i>Abrus precatorius</i>	5
St. Johnswort	<i>Hypericum perforatum</i>	26,28
Skunkcabbage	<i>Symplocarpus foetidus</i>	21
Small flowered buttercup and Tall field buttercup	<i>Ranunculus</i> spp.	22
Snowdrops	<i>Galanthus nivalis</i>	8
Spotted water-hemlock	<i>Cicuta maculata</i>	19
Star-of-Bethlehem	<i>Ornithogalum umbellatum</i>	2, 7
White baneberry	<i>Actaea</i> spp.	15
White snakeroot	<i>Eupatorium rugosum</i>	17,28
Yew	<i>Taxus</i> spp.	13



Cornell Cooperative Extension
Helping You Put Knowledge to Work