

are overlooked. Pruning should be done annually, preferably in the fall when the tree is dormant and the mites are overwintering inside the galls.

At this time there are no approved chemical controls; however, research into chemical controls for this pest is in progress in Saskatchewan.

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## Poplar bud gall mite



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## Distribution and Hosts

The poplar bud gall mite (*Aceria parapopuli* [Keifer]) attacks all species of poplar in the prairie provinces. Regardless of geographical location, however, damage is lightest on such native species as trembling aspen, plains cottonwood, and balsam poplar. The severest infestations are in the southern prairies, on the numerous poplar hybrids developed for use as ornamentals or in shelterbelts. These hybrids vary considerably in their susceptibility to this pest: some are highly resistant (e.g., Dunlop, Walker, Griffin, and Wheeler), while others are highly susceptible (e.g., Brooks No. 5, Northwest, and Saskatchewan).

## Symptoms and Damage

Damage is usually confined to the lower branches of the tree's crown. Adult mites attack buds and unfolding leaf clusters in the spring; mites sucking the sap from the tissue cause further twig growth to stop and cauliflower-like swellings (galls) to form. The mites live in these new galls, which are dark green, succulent, and covered with minute hairs. By late summer the galls have become hard and dry, and brick red in color. Galls remain active (i.e., inhabited by mites) for 1–4 years and may grow to 4 cm in diameter. Old or abandoned galls are grayish and hard, with a characteristic ridged and furrowed surface.

Trees affected with poplar bud gall mite lose their aesthetic value quickly because new galls are formed every year and old ones sometimes last on the tree for 5 or more years. A persistent infestation also causes the lower branches to become stunted and crooked, often resulting in branch death. The tree is seldom killed, but continued heavy attack may increase its susceptibility to other

pests and to such adverse environmental conditions as frost or drought.

## Causal Agent

The adult poplar bud gall mite is a wormlike organism so tiny (0.2 mm in length) that it is invisible to the naked eye. A cluster of adult mites, feeding on new poplar buds or unfolding leaves, inject into the tree a substance that stimulates the formation of a gall around them. The mites that live inside this gall feed on the sap in the gall and produce a new generation every 2–3 weeks until October—eight or more generations each year. As the population increases, the gall grows in size, and an active gall may contain more than 3000 mites. All life stages spend the winter in the gall; in the spring, they either feed in the old gall or migrate along the branches to new buds, in which they initiate new galls. Galls are inhabited for up to 4 years and then abandoned. Mites are tiny and are easily dispersed by the wind to new localities where they initiate new infestations.

## Prevention and Control

In areas where there is high risk of poplar bud gall mite infestation, consideration should be given to the planting of more resistant hybrids, such as Walker and Griffin. An infested tree that is provided with adequate moisture, weed control, and fertilization can tolerate infestations of mites and gall development without major effects.

Control is difficult because mites spend most of their time inside the protective galls and reproduce rapidly. When only a few trees are infested, the problem can be controlled by pruning and burning all the branches with galls. It is imperative to remove all the galls because reinfestation can easily occur if any