



Cattle Producer's Handbook

Animal Health Section

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Pine Needle Abortion in Cattle

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Since the early 1900s livestock producers have had problems with pine needle abortion (PNA). Cattle often eat pine needles, and pregnant cattle that are allowed to eat pine needles will abort, resulting in dead or premature calves, retained placentas, and uterine infections. The problem is found throughout the western United States and Canada.

Many PNAs are caused by ponderosa pine, but other trees including lodgepole pine, common juniper, and others also cause abortions (Table 1). Analysis of other *Pinus* species for isocupressic acid, the causative toxin, continues. Research has identified the causative toxins, a probable mechanism of abortion, and when animals are most likely to abort. Additionally, research has provided some guidelines on how to avoid PNA.

Ponderosa pine (*Pinus ponderosa*) is an abundant, extremely hardy, and drought resistant tree that is common in the western regions of the United States and Canada. Lodgepole pine (*Pinus contorta*) is also common in the western United States as it grows well at high elevations and its tall, slender growth make it excellent for commercial uses such as poles, fences, and log buildings. Common juniper (*Juniperus communis*) is a low understory shrub found in high elevation forests. Other species, listed in Table 1, grow in similar habitats. Abortions will occur if sufficient amounts of needles, duff, new growth, or bark are consumed.

Consumption and Susceptibility

Cattle graze few ponderosa pine needles except during the winter or extreme drought conditions. However, once cattle begin eating pine needles, they learn to like needles and will sometimes consume large amounts. The amount eaten varies with weather events, nutrient status, and snow depth or the availability of other forages. Consumption appears to be related to colder temperatures and, consequently, consumption of pine needles is greatly reduced during mild winter weather.



Fig. 1. Cattle often eat pine needles, particularly when other forage is less available or during winter weather events.

Cattle will eat green or wilted needles directly from low branches, from felled trees, or slash piles. They will also eat dried needles from the forest bed (Fig. 1).

Pine needle abortion has been reported to occur in cattle and buffalo (*Bison bison*), but not elk, sheep, or goats. Cattle in the third trimester of pregnancy are more likely to abort or deliver premature calves when they ingest pine needles. Pine needle-induced abortions can have varying morbidity, affecting up to 100 percent of exposed animals. Common scenarios of poisoning include situations when cattle in late gestation are forced into stands of ponderosa pine trees by winter storms, when cattle are exposed to easily accessible pine needles by logging operations or blow downs, or drought conditions.