Management Information on *Pennisetum ciliare*

Cultural: McIvor (2003) studied the survival of buffel grass seedlings in quadrats with and without competition from other vegetation in two pastures near Townsville, Australia. Analysis of the results indicated that buffel grass is a good coloniser of bare ground (40% and 80% germination success) but is unable to invade patches with vegetation (no seedling survival). The author indicates that the results, though confined to one type of vegetation, demonstrate that buffel grass is a ready coloniser of bare ground that could be formed due to drought or overgrazing, but is a poor invader of native pastures in high rainfall areas where it cannot compete with exisitng vegtation. The author suggests that the implication on management of buffel grass spread is that maintaining competition discourages it.
Seed is also easily spread by humans as they readily adhere to trousers and socks, thus it is very important to make sure seeds are removed from clothing after visiting a buffel grass area (Griffin 1993).

Biological: Martin (2002) states that, "*P. ciliare* has no serious pest problems except for a recently discovered fungal blight caused by the heterothallic ascomycete fungus *Magnaporthe grisea*. Since *P. ciliare* reproduces by apomixis (an asexual method of seed production), there is very little genetic diversity in its stands. Therefore, strains of *P. ciliare* that are resistent to *M. grisea* are not likely to develop naturally."
Smith (Undated) observes that buffel grass has not been evaluated for biological control, because of its extensive use in erosion control.

Chemical: Tu (2002) states that, "Herbicides can control *P. ciliare*, particularly when combined with a manual or mechanical method to first reduce the standing biomass. Tix (2000, in Tu, 2002) reports that the most effective chemical control is to use a combination of glyphosate and ammonium sulfate. Soil disturbance should be minimized in restoration work."
Martin (2002) states that, "In greenhouse studies 14 d old *P. ciliare* plants were susceptible to injury from triclopyr (0.3-2.2 kg/ha), picloram (0.6-2.2 kg/ha), hexazinone (0.3 kg/ha), 2,4-D (0.6-2.2 kg/ha) and dicamba (1.1-2.2 kg/ha). Mortality of *P. ciliare* only occurred when treated with 2.2 kg/ha of hexazinone. Regrowth was halted in all treatments. Older plants (90 days old) were less affected by the treatments. Reduction in plant weight occurred only in the 2.2 kg/ha of triclopyr and 0.3-2.2 kg/ha of hexazinone treatments. Older plants quickly recovered except in the hexazinone treatments. Mayeux, Jr. and Hamilton (1983) found that 2,4-D (2 kg ae/ha), dicamba (2 kg ae/ha), and picloram (2 kg/ha) did not have a negative effect on *P. ciliare* production."

Mechanical: Tu (2002) states that, "Manual and/or mechanical methods can successfully control *P. ciliare* in small, isolated patches. Repeated cultivation (tilling) can also eventually eliminate a *P. ciliare* infestation, but the applicability of such measures is limited in natural areas. Infrequent cutting or mowing of *P. ciliare* is not effective since even low-mowed grasses can produce seed. Mowing may even increase rates of growth. Burning is not an effective control method for this species. *P. ciliare* populations are essentially unharmed by burning, and may respond with an increase in cover and improved herbage production."
Martin (2002) states that, "The long, dense root mass makes manual removal difficult. All pieces of the root must be removed or resprouting may occur. Flooding to control *P. ciliare* is unlikely to be practical or effective. Five days of flooding resulted in no loss of *P. ciliare* in Australia, while twenty days of flooding resulted in a loss of 20-85% (depending upon the cultivar). Taller varieties seem to be more flood-tolerant. Cutting or grazing before flooding may increase control."