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May 1, 1996

Mr. Johnny Pappas
Cyprus Plateau Mining Corporation
P. O. Drawer PMC
Price, Utah 84501

Re: Weed Control, Amax Coal Company, Castle Gate Mine, ACT/007/004, Folder #2,
Carbon County, Utah

Dear Johnny:

Yesterday, you requested some information about how often herbicides should be applied to certain noxious weeds. The recommendations in this letter are from a presentation at the Utah Weed Control Association, two different weed control handbooks, and personal experience.

Whitetop:

The best treatment appears to be to use 0.5 to 0.75 oz. of Escort mixed with 1-2 pts. 2,4-D per acre, but there are other herbicides registered to use on whitetop. Any of the herbicides should be applied in the spring when the plants have reached the bud stage but before they bloom. Spraying before bud stage is better than spraying after they bloom. If there's a thorough application the first time in the spring, a second spring application is probably not necessary. However, since it is usually difficult to get every plant the first try, I would suggest making the first spring application, waiting a few days for the plants to show symptoms of the herbicide, then making a second application. To get the best control, there should be another herbicide application (using 2,4-D only according to recommendations from U.S.U.) in the fall after the plants start to regrow. Seeds remain viable in the soil for about three years, so it's necessary to repeat the process for at least three years.

Musk Thistle:

Herbicides listed in the Weed Control Handbook are clopyralid + 2, 4-D amine (Curtail), picloram (Tordon 22K), and chlorsulfuron (Telar). It's best to apply these in the spring to young, actively growing weeds before they send up much of a seed stalk.



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My experience is that it's very difficult to get every plant even after two or three tries. If you use 2, 4-D, I suggest that you begin in late May and plan to spray about every week through the end of June. The other herbicides listed above have some residual activity in the soil. I'm not as familiar with them, but I think you would probably want to have at least two applications.

Dyer's Woad:

Dyer's woad is a biennial like musk thistle, but it blooms earlier in the year. You would probably want to begin control efforts very soon and have a minimum of one (I suggest two) follow up application before the end of May. Herbicides and application times listed in the Weed Control Handbook are:

2, 4-D amine or ester: In rosette stage, treatments should be made after seedlings have started growth in the fall. Repeated treatments will be required for effective control.

dicamba (Banvel) + 2, 4-D: Bud or bloom stage or fall after seedlings have germinated.

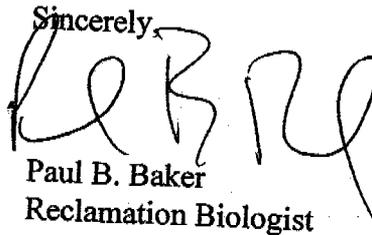
metsulfuron (Escort): Postemergence to young, actively growing plants.

chlorsulfuron (Telar 75): Pre- or early post-emergence to control young plants.

With all of the herbicides listed in this letter, it's important that you follow label directions. My references materials are from 1993 and 1994, so label directions could have changed.

I appreciate your efforts to control these weeds. They are all difficult to eradicate, but I feel you can keep populations of all of them within manageable ranges. Please don't hesitate to call if you have more questions.

Sincerely,



Paul B. Baker
Reclamation Biologist