

US EPA ARCHIVE DOCUMENT



(7-17-02)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

MEMORANDUM

SUBJECT: Review of Request for Emergency Exemption for Use of Metsulfuron-methyl to Control Triazine Resistant Weeds in Sorghum (02-CO-14) [DP Barcode D283520]

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THRU: Arnet W. Jones, Chief
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REVIEWED BY PRP: July 17, 2002

SUMMARY: Colorado has requested use of metsulfuron-methyl for post-emergence control of triazine-resistant broadleaf weeds including pigweed, (*Amaranthus spp.*), waterhemp (*Amaranthus rudis* or *Amaranthus tuberculatus*), and kochia (*Kochia scoparia*) under severe drought conditions. This is the first year for this request, although this use has already been granted to other states. BEAD has reviewed this request and concludes that a determination of an emergency situation can not be made based on the information submitted. Although this situation appears to be very difficult due to the unprecedented severity of this drought, there is at least one alternative herbicide treatment available. In addition, economic loss from use of the best available alternative could not be documented. A discussion of the situation follows.

BIOLOGICAL ANALYSIS: Metsulfuron-methyl has been requested for the first year for use in the rescue crop of sorghum to be planted over the winter wheat crop that failed due to the extreme

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drought conditions in Colorado.

This year Colorado experienced the lowest spring rainfall recorded in over 100 years (1). Due to the drought conditions, soil applied herbicides are not expected to perform adequately since they need a certain level of soil moisture in order to be absorbed by the weed roots and shoots. Therefore, an effective post-emergence herbicide program is needed. In addition, because soil moisture is low, weeds will likely germinate erratically resulting in a wide range of growing stages of weeds in the field at one time. For this reason, the post-emergence herbicide program must be effective on a range of stages of growth in weeds.

At least one post-emergence herbicide program, the combination of prosulfuron at 0.5 oz/acre with banvel at 0.5 pt/acre, is currently registered for this situation but was not discussed in Colorado's submission. Colorado did identify the use of prosulfuron alone at 1 ounce per acre as the best available alternative. However, the former treatment was identified by researchers in Texas as superior in weed control and less expensive than use of prosulfuron alone (2).

No difference in yield between the requested herbicide (in combination with 2,4-D) and the next available alternative, prosulfuron (PEAK®) was estimated in the submission (page 9). Both treatments were estimated to yield 40 bushels per acre. Therefore, BEAD estimates that yield loss without use of the affected chemical would be negligible.

Colorado also states that the use of metsulfuron-methyl will allow growers greater flexibility in rotation to desirable crops including sunflowers, however, no economic data were submitted to show that growers would suffer losses from rotation to other crops.

Professor Phillip Westra (3), an Extension Specialist with Colorado State University stated that this would be an extremely difficult year for wheat/sorghum growers and that they needed a weed control treatment that is inexpensive with low carry-over potential to other crops. Metsulfuron-methyl meets these criteria. He also stated that including 2,4-D with the requested herbicide provides control of the troublesome weed, Russian thistle, that is far superior to herbicide combinations containing banvel.

ECONOMIC ANALYSIS: Growers are unlikely to experience significant economic loss according to BEAD analyses conducted using both the historical and tiered methods. With the requested chemical plus 2,4-D, farmers will make a profit of \$13 per acre. With the next best alternative identified in the package, prosulfuron, farmers would make an estimated \$4.65 per acre. Although the requested herbicide results in greater profit, use of the next best alternative is also profitable.

The historical method, which examines five-years of historical data, resulted in nearly 51 percent economic loss of gross revenue needed before growers would experience significant economic loss. Growers would not qualify for an exemption using the historical approach. The range of profitability for CO sorghum growers is a wide one (-\$34 to \$31 per acre). With the tiered approach, this loss falls within the normal range of profitability.

However, it should be noted that this analysis did not consider losses growers have already incurred from loss of their winter wheat crop.

CONCLUSIONS AND RECOMMENDATIONS: BEAD concludes that this request for emergency exemption has not been adequately documented. If Colorado intends to seek an exemption for next year, the following information should be submitted:

- A discussion on the efficacy of the potential alternative that includes prosulfuron at 0.5 oz/acre with banvel at 0.5 pt/acre.
- An analysis of the potential for economic impact resulting for the inability of growers to rotate to desirable crops such as sunflower following use of the next best alternative, prosulfuron. The analysis should include alternate rotational crops other than sunflower, such as wheat.

REFERENCES:

(1) Climate at a Glance. National Climatic Data Center. National Oceanic and Atmospheric Administration, U.S. Department of Commerce. Available on-line at www.ncdc.noaa.gov/cgi-bin/cag3/hr_display3.pl

(2) Bean, B., and C. Salisbury. Texas A & M University, Texas Agricultural Extension Service. Available on-line at soil/crop.tamu.edu/publications/pubs/peak.pdf.

(3) Personal communication between Dr. Phillip Westra, Colorado State University and Virginia Werling, U.S. Environmental Protection Agency on July 9.