May 2014

CC62-125 Chemical Drying Sprays as and Aid for Seed Production

J. D. Furrer

Rodney W. Bovey

Follow this and additional works at: http://digitalcommons.unl.edu/extensionhist

Furrer, J. D. and Bovey, Rodney W., "CC62-125 Chemical Drying Sprays as and Aid for Seed Production" (2014). Historical Materials from University of Nebraska-Lincoln Extension. 3119.
http://digitalcommons.unl.edu/extensionhist/3119

This Article is brought to you for free and open access by the Extension at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in Historical Materials from University of Nebraska-Lincoln Extension by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.
Desiccants enable seed producers to harvest more seed of greater purity and higher quality at less cost. A chemical is sprayed on the seed crop a few days before harvest. This chemical dries the leaves and stems of the standing crop, causing the seed to lose moisture. There are several advantages for this method:

1. Cures the standing crop in the field.
2. Makes direct combining possible.
3. Eliminates seed losses which occur when the crop is mowed, windrowed and threshed.
4. Reduces seed losses due to rolling of windrows by high winds.

5. Reduces shattering losses due to rain showers.

6. Dries green undergrowth, including weeds.

7. Kills only the top growth— not the roots— and allows normal regrowth of perennial crops.

8. Does not affect germination of the harvested seed.

9. May result in more uniform color and quality of seed.

10. May double the seed harvest on some legume crops.

11. May advance harvest date as much as three weeks.

12. May enable sorghum seed crop to escape injury from damaging frost.

Crops Suited For Chemical Drying

The legume seed crops appear to be well suited for pre-harvest treatment with crop drying chemicals. Alfalfa, sweetclover, and red clover seed fields are commonly mowed, windrowed, and then combined using a pick-up attachment. Varying amounts of seed are lost in this way. Experiments indicate an average loss per acre of 40 to 50 pounds of alfalfa seed and as much as 100 to 150 pounds of sweetclover seed. These losses can be compared with 10 to 15 pounds per acre from chemically cured fields. Increased seed harvest often more than pays for the $5 to $6 per acre cost of the crop drying chemicals.

Chemical drying may also be profitable in the case of weedy soybeans. It is not recommended as a method for hastening maturity of soybeans because of the adverse effect on seed size and yield. The need for chemical drying will probably occur most often in solid drilled soybeans.

Chemical drying of sorghum grown for seed purposes may permit harvesting several weeks earlier than normal. The cost is justified in the production of high value crop
where seed of good quality and high germination is needed.

Chemical drying may be valuable in seed production of other crops such as (1) certain grasses, (2) hybrid corn, (3) hairy vetch, and (4) castorbeans.

Chemicals and Rates of Application

Materials used for chemical drying are classified as contact herbicides. This means that sprays kill only the leaf and stem tissue that is contacted by the spray solution. Therefore, it is important to obtain good spray coverage.

Chemicals now available may be classified into two main groups: those with a rapid killing action (24 to 72 hours) and those with slower action, requiring 7 to 10 days between treatment and harvest.

The dinitro compounds (4,6-dinitro-o-secondary butylphenol and amylphenol) diquat, (1:1'-ethylene-2:2'-dipyridylium dibromide) and PCP (pentachlorophenol) give rapid drying action which may permit harvesting as soon as 24 hours after treatment when hot, dry conditions prevail. A period of 2 to 3 days is a more common interval with most of the legume seed crops. A somewhat longer period is needed for grain sorghum.

Chemicals which are slower acting are endothal (3,6-endoxohexahydrophthalic acid), magnesium chlorate, and nitrogen solutions applied in water.

Under Nebraska conditions dinitro and pentachlorophenol have given the most consistent results. They have been superior in drying up weed growth which may occur in the seed crops. No effect on germination has been found with any of the seed crops tested.

In exceptionally heavy growth a second application is sometimes advisable to get adequate drying. The second treatment can be made at a reduced rate of both chemical and carrier.

NOTE: Nitrogen solutions are the only desiccants safe for use on feed grain and forage.
## PRE-HARVEST DESICCANTS FOR SEED CROPS

<table>
<thead>
<tr>
<th>Seed Crop</th>
<th>Chemical</th>
<th>Lbs. active ingredient/needed per acre</th>
<th>Apply this amount commercial product</th>
<th>Application time</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Legumes for seed:</td>
<td>DNBP or DNAP</td>
<td>1 1/4 to 2</td>
<td>3 to 5 pt. of 3 lb./gal. dinitro</td>
<td>After most of the seed pods have turned brown.</td>
<td>Aerial equipment: apply chemical in 5 to 10 gal. diesel/A. Dinitro compounds are poisonous. Treated forage or seed must not be fed.</td>
</tr>
<tr>
<td>alfalfa, red clover,</td>
<td>PCP (Penta)</td>
<td>4 to 6</td>
<td>4 to 6 qt. of 40% penta-chlorophenol</td>
<td>After most of the seed pods have turned brown.</td>
<td>Diesel rates same as for dinitro. Treated forage should not be used for feed.</td>
</tr>
<tr>
<td>sweetclover, hairy vetch,</td>
<td>endothal</td>
<td>4 to 6</td>
<td>4 to 6 qt. of 2 lb./gal. material</td>
<td>After most of the seed pods have turned brown.</td>
<td>Apply in 5 to 10 gal. water/A. Less effective than DNBP, DNAP, or PCP except at tempera-</td>
</tr>
<tr>
<td>and soybeans</td>
<td>diquat</td>
<td>1 to 1 1/2 qt.</td>
<td>Apply about one week prior to harvest</td>
<td></td>
<td>tures below 60°F. Treated forage should not be used for feed.</td>
</tr>
<tr>
<td>Grain sorghum for seed</td>
<td>DNBP or DNAP</td>
<td>1 1/4 to 2</td>
<td>3 to 5 pt. of 3 lb./gal. dinitro</td>
<td>Grain should be fully colored and moisture down to 35% to 40%.</td>
<td>Aerial equipment: apply chemical in 5 to 10 gal. diesel/A. Dinitro compounds are poisonous.</td>
</tr>
<tr>
<td></td>
<td>PCP (Penta)</td>
<td>4 to 6</td>
<td>4 to 6 qt. of 40% penta-chlorophenol</td>
<td>Same as above.</td>
<td>Diesel rates same as for dinitro. Treated forage should not be used for feed.</td>
</tr>
<tr>
<td></td>
<td>magnesium chlorate</td>
<td>2 gal. Milo-Mag or 3 1/2 gal. De-Fol-Ate</td>
<td>Same as above.</td>
<td>Same as above.</td>
<td>Aerial equipment: apply chemical in 5 to 10 gal. water/A. Generally less effective than</td>
</tr>
<tr>
<td></td>
<td>hexahydrate</td>
<td></td>
<td></td>
<td></td>
<td>DNBP, DNAP, or PCP.</td>
</tr>
<tr>
<td></td>
<td>nitrogen solutions</td>
<td>Apply at a rate to give at least 30 lb.</td>
<td>Same as above.</td>
<td>Add wetting agents.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>diquat</td>
<td>1 qt.</td>
<td>Apply about one week prior to harvest</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1/ Refers to acid equivalent, phenol equivalent, or active ingredient as applicable.