This disease has reduced cotton yields in affected areas for many years. The incidence of diseased plants has accelerated greatly over the past two years. In Pima County the yield loss is presently greater due to Texas Root Rot (TRR) than all other pests combined.

Some areas of Texas have reported significant control through the use of common salt (NaCl) and anhydrous ammonia (NH₃). The tests reported here are the result of using these two materials in fields where TRR has a history of occurrence.

Test #1 compared NH₃ (200 lbs./A and salt (1750 lbs./A) with a check. The test was replicated three times. NH₃ was shank-in in the middle of the furrow about 16 inches deep immediately following listing while the salt was broadcast over the flat just prior to listing. There was no significant difference in yield as a result of these treatments. Salt tended to reduce yield although not significantly.

Test #11 compared two rates of NH₃ (100 and 370 lbs./A) with a check. Application method and replication number were same as in test #1. Both rates of NH₃ tended to reduce the yield over the check slightly but no significantly difference occurred.

The incidence of TRR in Test #11 was considerably greater than in Test I although both tests were in same field. Increased TRR undoubtedly was responsible, to a large degree, for the lower yields recorded in Test II.

### TEXAS ROOT ROT
### CONTROL TESTS-1978

#### Test #1

<table>
<thead>
<tr>
<th>Treatment</th>
<th>NH₃ Turnout (%)</th>
<th>Check Turnout (%)</th>
<th>Salt Turnout (%)</th>
<th>percent plants/A Lint</th>
<th>NH₃, Check, Salt</th>
<th>% lint</th>
</tr>
</thead>
<tbody>
<tr>
<td>NH₃ 200 lbs./A</td>
<td>33.58</td>
<td>33.0a</td>
<td>31.43</td>
<td>30.0a</td>
<td>58.8a</td>
<td>100</td>
</tr>
<tr>
<td>Check</td>
<td>33.43</td>
<td>33.0a</td>
<td>31.43</td>
<td>30.0a</td>
<td>58.8a</td>
<td>100</td>
</tr>
<tr>
<td>Salt 1750 lbs./A</td>
<td>32.77</td>
<td>30.6a</td>
<td>31.46</td>
<td>30.6a</td>
<td>58.8a</td>
<td>100</td>
</tr>
</tbody>
</table>

1/ Turnout percentages based on laboratory gin results.
2/ Values followed by same letter not significantly different at the 5% level by student-Neuman Keuls Test.

No further salt applications are planned for 1979 but yield results will be tabulated on the 1978 applications as there are indications that the greatest benefit may accrue in the second year.
Phymatotrichum Root Rot

D. Hine, J. Armstrong, R. Cluff, S. Stedman, and B. Taylor

One objective of our field studies during 1978 was to determine if deep placement of anhydrous ammonia prior to planting would reduce the incidence of Phymatotrichum root rot in cotton. This work was supported by a grant from Cotton Incorporated and was initiated primarily because of encouraging results reported from Texas by S. D. Lyda. Observations were also made on the use of sodium chloride as a pre-plant treatment for disease control.

Field plots were established in cooperation with county agents in Pinal County (Sam Stedman), Graham County (Ron Cluff), and Pima County (Jim Armstrong). Yields were taken at two locations in Marana and one location in Safford where disease incidence was high. Observations were made on disease incidence periodically through the season. All plots were aerially photographed with infrared film on September 20, 1978.

Ammonia Study - Ammonia gas is known to be fungicidal to Phymatotrichum omnivorum, the fungus causing cotton root rot. The most encouraging results occurred in the Safford test (See Table 1) where anhydrous ammonia was applied to a depth of approximately 16" with a Big-Ox plow with the shanks set 20" apart. Considerable disease developed in the plots and there was some increase, although not statistically significant, in yield in the plots with 120 lbs/NH₃ and 240 lbs/NH₃/acre.

In the Marana area (See Table 2), anhydrous ammonia was applied only in the furrow. There was a slight increase in lint at 200 lbs NH₃/A in one test and no increase in yield at 300 lbs/NH₃/A in another test.

A large test along the Gila River in Florence (40 acres, deep-placement, shanks set at 19", 200 and 250 lbs NH₃/A; and 40 acres check) yielded no information because of low disease incidence and obscuring of results because of high incidence of Verticillium wilt.

Two observational plots in Florence and Coolidge (Big-Ox plows, 200-250 lbs NH₃/A, 16" depth, pre-plant), check strips (no NH₃) in center of field, were inconclusive. There was a stimulation of plant growth in the ammonia treated portions of the field but the number of dead plants was similar.

NaCl Tests - It should be emphasized that high soil sodium apparently reduces the ability of Phymatotrichum to produce survival structures. Thus, the effect of salt additions should be noticed the year after application and not during the year of application.

In a test at Coolidge, approximately 1500 lbs/A sodium chloride was applied on the surface, disced in, and then the beds shaped. One strip, approximately 80' width, was left as a check. There was no detrimental effect of the salt on stand or water penetration. No effect, as expected, was noted on disease incidence.

In another sodium chloride test at Marana (Table 3) there was no effect on disease in cotton planted into an area treated with 1900 lbs/A of sodium chloride in 1977. Also, as expected, an addition of 1850 lbs/A of sodium chloride (applied on the flat, beds then shaped) had no effect on yield or disease incidence.