10. The first Annual Report on a special project dealing with testing of Dr. Land Grazing Alfalfas was made to the Conference by the Secretary. Advice was requested as to whether this phase of the alfalfa improvement program should be incorporated in the Uniform Nurseries Report, or whether it should be continued as at present in a special project report until the program is more firmly established. The Conference agreed that the project should be continued as organized for at least two more years. At that time it was hoped that additional financial support might be made available for this phase of the alfalfa improvement program and at that time receive special consideration.

Report of Special Committee on "Region of Adaptation."

R. P. Murphy, Chairman

A committee on 'Region of Adaptation' was established by the Chairman of the Alfalfa Improvement Conference upon the recommendation of the International Crop Improvement Association, at its meeting in Kansas City in December 1951. The purpose of the temporary committee was to study the problem, and to develop a plan of procedures which could be presented to the next meeting of the Alfalfa Improvement Conference. A great deal of work has been done by this committee during the interim, and also by some of the Regional Alfalfa Groups, particularly in the East, and in the Midwest. After thorough consideration of the problem, and the development of tentative plans, the committee recommended to the Conference that:

1. The Interim Committee continue to study the problem and plans.

2. That the tentative plans developed at the Raleigh Conference be discussed with the members of the Regional Alfalfa Improvement Groups, or the Regional Forage Crops Committees at their meetings in 1953.

3. That progress to date be presented to the Alfalfa Committee of the International Crop Improvement Association at its annual meeting in California in September 1952.

4. That a permanent committee be established following the 1953 Regional Conferences as approved at the meeting of the National Alfalfa Improvement Conference, June 1952 at Raleigh, North Carolina.

The complete memorandum developed by the Chairman of the Committee, and the report presented to the Conference by the Secretary of the Committee, Dr. S. S. Atwood are all reproduced as follows.
Report of the Committee on Region of Adaptation.
R. P: Murphy, Acting Chairman of Committee

To Committee:
S. S. Atwood, New York
W. R. Battle, New Jersey
C. H. Hanson, North Carolina
Hugo O. Graumann, Nebraska
Dale Smith, Wisconsin
J. R. Harlan, Oklahoma—alternate for C. L. Canode, resigned
R. F. Eslick, Montana
M. W. Pedersen, Utah
E. H. Stanford, California
T. M. Stevenson, Canada
O. S. Aamodt, Secretary Alfalfa Conference
D. F. Beard, B.P.I.S.A.E.
R. D. Mercer, I.C.I.A.
Oliver F. Smith, Chairman Alfalfa Conference.

Dear Sirs:

The attached report from the committee on the Region of Adaptation of Alfalfa Varieties for seed production was made and unanimously approved at the meeting of the 13th National Alfalfa Improvement Conference June 13 in Raleigh, North Carolina.

Since some of you were not in attendance at this meeting, and since the plan has been changed considerably, I would like to hear from each of you in regard to this report. We have discussed this proposed study for some time, and it seems we should now initiate it. Because of the time and expense involved we should be certain that this is the best plan that can now be devised.

It is expected that this report will be presented to the Alfalfa Certification Committee at the annual meetings of the I.C.I.A to be held in Bakersfield, California on September 8, 1952.

It is hoped that there will be sufficient agreement on this plan so that the revised study as outlined in this report can be initiated in 1953. This will necessitate commitments on the part of the seed-producing states and the designation of the basic foundation seed lot for each variety. It is hoped that the good offices and personnel of the National Foundation Seed Stocks Project can be used for this purpose. It may be that a satisfactory lot of sufficient size can be designated so that all fields proposed in this study which produce either registered or certified seed could be regular seed production fields. This is a problem for the states involved in the production of the lots for test and can be discussed at the meeting in Bakersfield. It seems that all fields which produce seed which is one generation beyond what is permitted under present certification standards will need to be relatively small (minimum .5 acre) and under the supervision of the plant breeders in the respective states.

Dr. M. W. Adams of South Dakota raised the question of whether Buffalo should not also be included in the study in order to measure the effect of various generations of increase in a variety which is relatively homogeneous. This might determine if the degree of change in a variety when grown outside the area of adaptation is correlated with the genetic heterogeneity of that variety. This would necessitate more work on the part of the seed-producing states, and also on the part of those who test the lots for forage production.
It was decided that I should continue to act as Chairman of this committee until the meetings of the Regional Conferences in 1953, at which time a new committee and a new Chairman is to be elected (see attached report).

May I please hear from you by August 15th?

Very truly yours,

(Signed) R. P. Murphy

Acting Chairman of Committee

Dr. M. W. Adams:

Was any consideration given to including in these proposed experiments a relatively homogeneous variety, genetically, such as Buffalo? It would seem to me to be worthwhile since only a few additional seed lots would need be produced to determine if the degree of change in a variety when grown outside the area of adaptation is correlated with the genetic heterogeneity of that variety.

Dr. R. P. Murphy:

Over the past two years there has been considerable discussion by the members of the committee and by the Alfalfa Certification Committee on the number and selection of the varieties which should be studied. The original plan for the study which was first submitted by the Central Regional Alfalfa Conference Group called for two varieties -- one resistant and one susceptible to bacterial wilt. Ranger and Atlantic were suggested. They also may be different in winterhardiness and region of adaptation. To me there has seemed to be general agreement on this. Some workers have suggested that one variety is all that could be studied at this time because of the work involved. It would be best if Buffalo as well as the others could be studied, but it is still questionable if all parts of the plan as now suggested can be carried out. There was no suggestion at last night's committee meeting to change the varieties to be studied, although I raised the question of including Buffalo. It seems to me that it is a problem of initiating a study now as soon as possible. We should get some answer to our problems, and we will probably raise more questions which will need study.
Report of "Region of Adaptation" Committee
Meeting held in Raleigh, North Carolina
June 12, 1952

Persons who were present throughout most of the evening: Battle (N.J.), Law (Wash.), Jensen (N.C.), Jones (Calif.), Graber (Wis.), Grandfield (Kans), Wright (Ariz.), Carlson (Utah), Bingefors (Sweden), D. Smith (Wis), McAlister (Ariz.), Murphy (N.Y.), and Atwood (N.Y).

(Several other persons were in attendance part of the time particularly after some of the other committees adjourned late in the evening).

Chairman Murphy opened the meeting by outlining the background of the Committee's origin, the plan of organization, and the actions to date. (See Murphy's letter of February 18 and April 12). Murphy explained how the present Interim Committee had been appointed following the Regional Meetings in 1951.

The Interim Committee had agreed, through correspondence, that the present lines separating the Northern, Central, and Southern Regions should be maintained for the present, and that any changes in the future should be based on new experimental evidence. These conclusions had been presented to the ICIA Alfalfa Certification Committee in December 1951.

Murphy also described the tests of Ranger, Buffalo, and Atlantic seed lots, which had been assembled and distributed by the National Foundation Seed Project for planting in 1952, as the first step in obtaining more precise information on the problem under consideration.

After considerable discussion, the following actions were taken on "Organization of the Committee:"

(1) The present personnel of the "Interim Committee" should be continued through the Regional Conferences in 1953.

(2) Following the 1953 Regional Conferences, a permanent committee on "Regions of Adaptation" should be made up as follows:

Three members from each of the 3 Regional Groups, with first terms staggered for 2, 4, and 6 years, and subsequent terms for 6 years.

Secretary of Alfalfa Improvement Conference 1
A representative of the BPIS & AE 1
A representative of the ICIA 1
A representative of Canada 1

The Chairman of the Committee should be elected by the Committee from among its members, and should be a person who will attend meetings of the Alfalfa Certification Committee of the ICIA and preferably be a member of that Committee.
The remainder of the evening was devoted to a discussion of the long-time experiment designed to get further information on the problems of defining regions of adaptation and other Certification requirements. Considerable attention was devoted to such questions as size of the plots, amounts of seed required, methods of planting, storage of seed, and plans for the experiment. Many of these suggestions proved very valuable and will be utilized wherever possible in the ultimate plan.

It was finally agreed that the various plans which had been proposed up to this time were each ineffective in not accomplishing all desired objectives, or in giving them disproportionate weight. Consequently, a completely revised plan was worked out in tentative form, and it was agreed that this new plan should be included as part of this report to be published in the Proceedings of the Raleigh Conference and should be referred back to the Interim Committee. Criticism is solicited from everyone interested, and it is sincerely hoped that final arrangements can be agreed upon in order to make the first plantings in 1953.

Respectfully submitted,

Sanford S. Atwood
Acting Secretary of Committee

The above Report was presented to the entire Conference on June 13, 1952, and was unanimously adopted.

Questions for which an answer will be sought in the "Region of Adaptation" Test.

For Seed Produced "Inside" Areas of Adaptation.

I. What changes occur in 3 generations (Registered, Certified, and Commercial) produced "inside" area of adaptation.

II. What changes occur in 5 successive crop years (by sampling 1st, 3rd, and 5th) of harvest from a single Registered field.

For Seed Produced "Outside" Area of Adaptation.

I. What changes occur, as measured, in the Certified (and Commercial) seed, if Registered Seed is produced in 3 such diverse areas as Montana (Northern, severe winter), Washington (intermediate), and Oregon (as far S. as possible in present "Northern area")—Only for Ranger, not Atlantic.

II. What changes occur in 2 generations (Certified and Commercial) produced "outside" areas of adaptation.

III. What changes occur in 4 successive crop years (by sampling 1st, 2nd, and 4th) of Certified seed (grown from Registered) — This comparison includes seedling year vs. two later years.
IV. What changes occur in 6 successive crop years (by sampling 1st, 2nd, 4th, and 6th) of Certified seed (grown from Foundation)—This comparison includes seedling year vs. three later years.

**NOTE:** The above listed "objectives" are considered as the minimum to be sought in this experiment. All should be accomplished by the proposed plan. It should be pointed out, however, that considerable additional information can be obtained by harvesting seed in additional years from any or all of the isolation fields. This would mean many more lots for testing, but the additional information from the extra years as well as from a repeated planting should prove very worthwhile. A decision on how long to keep the fields should be made before 1958.

"Region of Adaptation" Test

**A. Ranger:**

Begin with one lot of Foundation Seed at least 60 pounds of as high germination as possible, preferably from Montana

<table>
<thead>
<tr>
<th>Place and Year Planted</th>
<th>Harvested Year</th>
<th>Place and Year</th>
<th>Year Planted</th>
<th>Harvested Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Montana 1955</td>
<td>1955 (4)</td>
<td>Montana 1957</td>
<td>1957</td>
<td></td>
</tr>
</tbody>
</table>

Isolated fields needed per seed producing State = 3
(Same outline for Nebraska and Washington)
Total States "inside" and participating in Test = 3 (Montana, Nebraska, Washington)
Total lots from each producing State = 5

Total = 3 States x 5 lots per State = 15 lots for testing

b. For States "outside" area of adaptation:

<table>
<thead>
<tr>
<th>Place and Year Planted</th>
<th>Harvested Year</th>
<th>Place and Year</th>
<th>Year Planted</th>
<th>Harvested Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Montana 1954</td>
<td>1955 (1)</td>
<td>II. California</td>
<td>1956 (2)</td>
<td>1957 (3)</td>
</tr>
<tr>
<td>Montana 1955</td>
<td>1956 (4)</td>
<td>Montana 1958 (5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Washington 1954</td>
<td>III. California</td>
<td>1955 (6)</td>
<td>IV. California 1958 (7)*</td>
<td></td>
</tr>
<tr>
<td>Washington 1955</td>
<td>1956 (8)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
(3rd location — as far S. as possible) 1954→ V. California 1955 (9)* → VI. California 1958 (12)*
Oregon, Utah, or Idaho?
1953

(Original Foundation Lot) 1953
1955
1956 (10)
1957 (11)*

Isolated fields needed per seed producing State = 7 (see Note #3 below)
(Same outline for Arizona)
Total States "outside" and participating in Test = 2
Total lots from each producing State = 16

Total = 2 States x 16 lots per State = 32 lots for testing (see Note #3 below)

Grand total of Ranger lots for test = 15 from States "inside" (a, above)
47 (plus suitable checks, including original Foundation lot)
(See Note #3, below)

B. Atlantic:

Begin with one lot of Foundation Seed, at least 60 pounds of a high germination as possible

a. For States "inside" area of adaptation:
(Same general pattern as for Ranger, above)
Isolated fields needed per seed producing State = 3
(Same outline for each of 2 States, Utah and Wyoming, "inside" and participating in test).
Total States "inside" and participating in test = 2
(Utah Total lots from each producing State = 5
Wyoming)
Total = 2 States x 5 lots per state = 10 lots for testing

b. For States "outside" area of adaptation:

Utah 1954 → I. California 1955 (1) II. California 1958 (4)
1953 1955 1956 (2) 1958 (3)

Original Foundation Lot 1953 (5)
1954 (6)
1955 1956 (7)
1958 (8)
Isolated fields needed per seed producing State = 3
(Same outline for Arizona)
Total States "outside" and participating in Test = 2* (California
Arizona)
Total lots from each producing State = 8
Total = 2 States x 8 lots per State = 16 lots for testing

Grand total of
Atlantic lots for testing = 10 from States "inside" (a, above)
16 from States "outside" (b, above)
26* (plus suitable checks, including original Foundation lot)

*If an additional State, such as Oklahoma, is included, 8 more
lots would be available from "outside", making a total of 34
instead of 26.

NOTE #1 Arabic numbers in circles above (eg. 1, 2, etc) apply to
seed lots for testing.
Roman numerals above (eg. I, II, etc.) apply to fields needed
in seed producing States.

NOTE #2 In general, preference was expressed for using regular,
commercial-size seed fields wherever possible for Registered
and Certified generations, instead of special 0.1 - 1.0 acre
isolated fields. This may mean starting with a larger lot of
Foundation seed than indicated above.

NOTE #3 Seed lots marked with asterisks (*) might be eliminated from
final tests to reduce size, without reducing objectives; in
effect, these simply provide replication for some of the objec­tives.
If these were eliminated, it would reduce the fields of
Ranger "outside" to 5 instead of 7, and the total lots for
testing to 35 instead of 47.