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## Summary of Dry Bean Conference

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SUMMARY OF DRY BEAN CONFERENCE

Conducted by

Interested Research and Extension Staff of the  
Institute for Agriculture and Natural Resources,  
University of Nebraska

Held at The

North Platte Airport Conference Room

January 6, 1977

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## SUMMARY OF DRY BEAN CONFERENCE

### NORTH PLATTE AIRPORT CONFERENCE ROOM

January 6, 1977

#### Participants present:

<u>Lincoln Campus</u>	<u>North Platte Station</u>	<u>Panhandle Station</u>	<u>County Agents</u>
Dermot Coyne	Dale Lindgren	Chip Littlejohn	James Carson
Max Schuster	Gene White	Bob Edling	Howard Henschel
Jim Steadman	Neal Baxter	Eric Kerr	Mick Evertson
Blaine Blad	Jack Campbell	Al Weiss	Densel O'Dea
Dean Lancaster	Bob Perry	Walt Trimmer	Roger Wilson
Roger Uhlinger		Robert Retzlaff	Monte Hendricks
		Dave Nuland	Frank Whetzal
		John Weihing	

#### Those that have interests but not present:

<u>Lincoln Campus</u>	<u>North Platte Station</u>	<u>Panhandle Station</u>	<u>County Agents</u>
Lowell Satterlee	Gail Wicks	Art Hagen	Ray Sall
Ralph Neild	Paul Nordquist	Bob Wilson	John Linscott
		Frank Anderson	

#### INTRODUCTION

Four years earlier a similar dry bean conference was held in Gering. The conference was not structured but was an open discussion. The greatest value of that conference was the stimulus it provided the staff doing research and extension with dry beans. Much scientific work has been done since that conference and it was again apropos to review the status of the research and extension activities. We therefore gathered together in the North Platte Airport Conference Room and spent the day discussing many aspects of the dry bean industry and how each of us relate to it. We needed to do this so as to know what each other has been doing and to coordinate our research and extension efforts.

This conference was also conducted in an unstructured manner which allowed the participants to have open dialogue and the subject matter to evolve in a natural manner from topic to topic. In general, the group discussed extension and seed certification matters during the first half of the conference and research during the latter half.

## EXTENSION AND SEED CERTIFICATION

### Grower Education and Support Needed:

John Weihing expressed the feeling that a lot of the research which was being conducted during the past four years has not been made known to the growers. This feeling is based on the fact that many producers have indicated to him that research needs to be done with beans, particularly white mold disease. Yet, in reality, enormous progress has been made during recent years on the accumulation of information on the field ecology and etiology of the white mold organisms, and in varietal breeding, weed and insect control, and protein isolation. Much of the basic information on white mold has not been immediately applicable for field use and, as a consequence, there has been a lag phase in passing it on. In many ways this is unfortunate as the producers and the rest of the public are simply not aware of the sincere and dedicated effort that has been going into the research program. The public should be educated in what has been going on and the progress being made. The more thoroughly they are informed, the higher will be their admiration of the research program and their willingness to support it.

As a beginning to correct this situation, John Weihing recently sought the advice of several county agents on the initiation of a dry bean extension program. Monte Hendricks made the suggestion that an "ad hoc" dry bean advisory group be formed. County agents would select several key growers who would be good thinkers and interested in giving guidance. John Weihing presented this thought to all of the county agents in the Panhandle. They responded favorably to the idea and have sent John the names of producers whom they would like to have on the committee. The first meeting of this committee will take place at the Panhandle Station on February 11. A copy of the letters relating to the establishment of this committee are attached as an addendum for your information.

### The Need to Have a Grower Organization and a Check-Off System:

Monte Hendricks told the group that for many years growers have from time to time sought to organize an association and that there have been overt moves to have a check-off system. In fact, about 10 years ago a bill was drawn up and was in the legislative process but the dealers had not been involved in its writing. When they learned of it, they contacted Senator Carpenter and had it defeated in committee. This illustrates that a grower organization should have the backing of the dealers. Exactly how such an organization should be developed and structured is unclear at the moment but it is obvious that all segments of the bean industry must want it, and they must be included in its creation.

Such an organization has much value beyond that of a possible check-off for obtaining research monies but also it can act as an excellent extension vehicle through bringing researchers and growers into dialogue.

### The Need for Variety Testing:

Dr. Coyne has released several varieties during the past several years. Acceptance of the new varieties has been low because there has been no one extolling their attributes among the growers. Still more important, the dealers have in a number of instances actively discouraged a new variety for one reason or another. The most recent example of this was the report from a dealer that the new Star variety cracks excessively during harvest. In reaction to this report, Frank Anderson examined ten samples of Star which had been sent in during the certification process. He found that Star had not cracked significantly more than standard varieties. Apparently the cause for the excess cracks in the reported incidence was due to some factor other than variety. A copy of Frank's results are included as an addendum.

It is vital that test plots be established at several locations throughout the bean growing areas so that true comparisons can be made among the varieties. Further, such a program would familiarize the growers with the varieties and could very well be significant in helping obtain certified growers and inducing producers to plant Nebraska certified varieties.

The new varieties have survived in spite of the lack of a promotional program which can only mean that they are good. The farmers of the North Platte Valley were initially sensitized by the sugarbeet industry to go to the processor for their seed. This same procedure has been cultivated by the bean dealers. In fact, for many years the only source of certified bean seed was through the dealers. We must recognize this established practice and either develop an alternate means for growers to obtain certified seed or work within the system through getting dealer acceptance of the new varieties.

### Certified Seed Program:

Monte Hendricks pointed out that we must face the fact that several of the prominent dry bean dealers have vested interests in producing seed in Idaho. Their preferred variety is GN 59 for the Great Northern bean type. It is no easy deal to change this pattern as to do so would likely cause a reduction in profits on seed. We must recognize these facts and work from there.

Dean Lancaster informed us that the certification program began in 1962 but at that time we (certification and University personnel) were unable to go out and be real forceful in the promotion of this new certification program. Since that time there has been a major build-up of staff at the Panhandle Station, the addition of other scientists on campus (Steadman, Blad, Satterlee) who have been working on dry beans and the release of new superior varieties. We are now in a position where we can be forceful.

Dean further pointed out that in the beginning the certification program was tied to the dealers. Everyone thought that that was the

way to go. Now it is known that it wasn't and for the reasons that Monte gave earlier. These past 10-15 years have been a learning process and we now know that we must go back to the basics in extension and to work directly with the grower leaders.

Dave Nuland cautioned that the dealers should not be completely left out because they do have a business relationship with the growers and that they can be a part of this development if we keep them informed of the new information and developments. He fully concurred with the comments of Dean and Monte on the past problems in trying to develop the certification program and the need to go back to the growers for strength.

Mick Evertson who has had many years of experience with bean producers in several counties also agreed with the above analysis. He said "we can't go along without the dealers although admittedly, they have been the biggest stumbling block in the certified seed program." Mick is now county agent in Kimball and Banner counties where many new center-pivot systems have been put in. He feels that there is certainly an opportunity to have certified beans produced under some of these sprinkler systems.

John Weihing made the following comments: "Obviously, our initial certified seed program through the dealers has not worked out to our satisfaction. I believe we recognize that we should not condemn dealers. We must recognize them as a very integral part of the industry and I confidently feel that they have a very keen interest in this whole bean program but they look at it from where they sit and what it means to their businesses.

Why do they have vested interests in Idaho? It is because of the GN 59 that was developed there years ago. When I came to Nebraska in 1946, Dr. Max Schuster informed me that it was necessary to go to Idaho or some other similarly dry region for the growing of bacterial blight free bean seed. The Nebraska Plant Pathologists strongly advised that the bean growers get their seed from Idaho. Therefore, 40 years ago it was the University of Nebraska that was encouraging that a certified bean program be developed in Idaho for Nebraska bean growers. During 1950 as extension plant pathologist, I recommended that the growers plant Idaho certified seed. Thus, we started them on the Idaho seed."

"Now, 40 years down the road there has been the inclusion in the new varieties bacterial resistance through the cooperative work of Drs. Schuster and Coyne. Because of this, we have shown that we too can have a certified bean industry in Nebraska. So we have had a change in the situation.

"As for a dealer-grower organization, the dealers have run hot and cold. As soon as they are all warmed up to the idea, the question is raised as to what will be done with the money. Then someone answers 'research and marketing'. As soon as 'marketing' is mentioned

the deal is off. The dealers do not want someone messing around in the area of marketing. It is their feeling that that is their end of the business and they do not want anyone telling them what to do or to have any interference. We now know that marketing is a very sensitive point with them so we should attempt to understand their concerns in this area so we can work with them."

"The dealers have given active and real support to the university by voluntarily assessing themselves to pay for summer help in the breeding program. The amount of money has not been a great lot but compared to the size of their businesses, their contributions have been creditable. That money has kept Dr. Coyne's breeding program alive and viable. Each dollar received has had a lot of mileage and has been exceptionally productive."

"We can have strength from both the dealers and the growers. What we have to do is to find a way to develop a bond between the two groups so that we will have their combined strength. We are now launching into a new direction with our extension and certification programs. We have had greatly added strength within research. We have had the development of irrigation outside of the North Platte Valley where there may be a potential for certification. To have control of the certified seed gives control of industry."

Dean Lancaster was asked to speak to this which he did. He enlightened us to the fact that 95% of the dry beans planted in the U.S. are from certified fields. This crop has the highest percentage of its acreage planted with certified seed of any other major crop. This means that certification is the most important factor in this industry. This is necessary in order to be secure from destruction by bacterial diseases. In other words, the bean industry cannot survive without a certified seed program.

Dean further added that according to their records no certified grower has ever lost money by having grown a Nebraska variety for certification. The certified bean program has remained alive over the past 10 years in spite of adversities and dealer apathy to the varieties.

Densel O'Dea indicated that in his county there are growers who would like to grow Nebraska seed for certification but that the dealers will have nothing to do with that seed. Dave Nuland spoke to this indicating that the dealers like to contract their seed from Idaho in the fall to assist them in orderly marketing. They do not like to be burdened with small lots of seed which must be kept separate as it is expensive and time-consuming. Thus, there must be a large volume of certified seed grown so that the dealer can handle it with the same mass techniques as he does the Idaho seed.

Dave further added that this whole thing would flip overnight if there was a variety that had tolerance to white mold and the only place that certified seed could be gotten would be from Nebraska-grown certified. Dermot then asked what other qualities must be considered besides the white mold resistance for a variety to really go. The



answer by the group was that all that is needed is a variety equivalent to GN 59 in type and quality plus the white mold resistance. Such a variety would be the "hottest thing going".

Dermot again asked what criteria must be followed in the development of a bean variety. Following are some that were given by the group:

1. Cooking quality - something that hasn't really been determined.
2. Cracked seed.
3. Less flatulence.

#### Potential of Dry Beans as a Crop:

Jack Campbell raised the question regarding the potential of dry beans as a crop. He asked, "Is there a market potential which would get the owners of center pivots to grow beans instead of corn, a crop on which they are losing money?" Also, "what determines whether Great Northern or Pintos are grown?" Dave Nuland replied that the location of electric eye sorters determined the location of the Great Northern acreage. Eighty to 90% of the Great Northern acreage is in the North Platte Valley because the electric eye sorters are there. Outside of this region in Nebraska, Pintos are the main type of bean as they do not require the electric eye.

As for the expansion of markets, we don't know the potential. The dealers have established their Great Northern markets over the last generation or two and they go back to those markets each year. They really do not have very wide horizons. They are always looking at what they have and they closely guard their markets with a very close feeling.

Pintos go everywhere. They are preferred by the Spanish (Mexican) speaking people.

The dealers do not want any help in marketing and advertising-- it is a closed domain.

Densel O'Dea then asked regarding the present potential of certified dry bean acreage based on present production of beans. It was brought out from within the group that presently we have 120,000 acres. The beans are planted at a rate of one bushel per acre thus 120,000 bushels of seed are needed. At 30 bushels per acre this would require 4,000 acres of certified seed production. If the seed sells at \$30.00/bu, the gross value of the needed seed is \$3,600,000. It must be recognized that there is processing, transportation and handling charges besides the production costs that must be included when considering seed production and marketing. However, the certified acreage could be considered as an expanded acreage and not as a replacement.

At present the per capita consumption of beans in the U.S. is only about six pounds. If this were increased just one-half pound per person it would have a profound effect on market demand because of the present relatively small national acreage. Innovative advertising and techniques should be used to stimulate people to include more beans in their diet. Examples given were to include bean recipes with each crock pot or pound bag of beans.

The problem of flatulence is a major deterrent to the increased use of beans as well as needing to develop mechanisms to make beans a convenient food. Jim Steadman pointed out that much research work has been done on bean flatulence and it appears that the problem will have to be handled by breeding.

The question was raised as to "who is Dr. Satterlee?" John Weihing pointed out that it was an oversight that he was not invited to this conference and that Dr. Satterlee is a biochemist in the Food Science Department who has been doing very fine work on the isolation and utilization of the dry bean protein. He has obtained a patent on the isolation procedure and the protein can be added to foods if it has been isolated from beans free of white mold sclerotia. This is not economically feasible at present day prices for regular beans; however, it certainly is with cull beans which cannot be used until it is proved that protein coming from sclerotia-contaminated culls do not contain any health hazardous products.

## RESEARCH

### Much Quality Research Being Done:

John Weihing introduced the subject of research with the following comments:

"The dry edible bean research being done at Nebraska in the areas of breeding, diseases, insects, weed control, micrometeorology, fertility and protein isolation is as fine as anywhere in the United States. Nebraska citizens have tended to have an inferiority complex about their resources, the abilities of their own people and their accomplishments. They shouldn't be. Rather, they should be made aware of the fine research that has been conducted in recent years and is presently in progress."

### Sources of Research Funds:

A recent decision by Dr. Edminister, Administrator of the USDA-ARS, to divide an additional \$150,000 for bean research by allocating \$100,000 to Michigan and \$50,000 to California, there has been considerable concern on the part of the bean dealers in the Rocky Mountain Bean Dealers Association (RMBDA) that their states were unjustly left out. Jim Steadman had accompanied the

National Dry Bean Research Institute representatives to Washington, D. C., along with having submitted research proposals prepared by University of Nebraska and Colorado State University for the Rocky Mountain region so he was able to give a first-hand report. He first clarified the point that the money was budgeted for ARS and that that organization has a scientific staff of its own which is located throughout the U.S. as well as at Beltsville, Maryland. The \$150,000 was allocated to the ARS for bean research within its own organization although it could, if it deemed desirable, make an extramural grant to state scientists. Edminister felt that the research proposals that Jim presented were excellent, yet in the final decision, Dr. Edminister decided to keep all of the money within his own organization. The \$100,000 does not go to Michigan per se but is to establish a new ARS position in bean genetics at Michigan State University where there is already an ARS contingent that is working on beans. The \$50,000 does not go to any state scientist in California but instead goes to the ARS laboratory in California that has been studying the causes of the flatulence property in beans. There are no ARS dry bean programs in the RMBDA region.

Dr. Edminister emphasized that he will deal only with a unified commodity group. He will not meet with segments of an industry thus the total bean industry in the U.S. must have a focal Institute or council which can speak for the common interest of all bean producing areas. This is all the more reason that the bean growers of the RMBDA region should organize.

Jim further explained to the group that regional research funds come from USDA to the Nebraska Experiment Station Director for distribution among the experiment station projects. It is necessary that the experiment station director be aware of various research needs in order to make appropriate judgement decisions on the distribution of these funds. The county agents can be very helpful in informing Dr. Ottoson of the need and interest in dry bean research through arranging discussions between him and growers and dealers. Dr. Ottoson cannot be aware of these needs unless he is informed.

Dermot Coyne said that his biggest problem is financial support of his research. He has had to be dependent on dealers and the good will of others in order for him to conduct his work at the Panhandle Station. It is a critical problem and one that must receive attention. He is aware that growers organizations in Michigan, Idaho and California are highly supportive of research through providing money from check-off systems. The return from research has always been very good. So, whatever can be done to provide more funds in the breeding project would be greatly appreciated.

#### Are the New Varieties Superior?

Densel O'Dea asked if the new bean varieties are superior. The answer by the researchers was "yes". They have a definite superiority in tolerance to the two bacterial diseases most common to this region, bacterial blight and bacterial wilt. Tara is decidedly superior to GN 59 on the warm, sandy lands of the North Platte Valley. This is why we need to have test plots throughout the Valley and other locations so the superiority of the new varieties can be demonstrated.

## National Cooperative Research:

Dr. Coyne has for many years been a national and international leader in dry bean breeding. He constantly strives for cooperation and exchange of information among the bean researchers of the U.S. Dermot commented that the bean researchers are in the process of developing a National Cooperative Research body. He presented his thoughts on this by showing the diagram in Figure 1 which has the main areas of research and their cooperative arrangement. This diagram was developed cooperatively by Coyne, Steadman and Schuster and it is their desire to have all of the bean scientists in the U.S. contribute their research results within a system such as this as an effort to build towards common goals.

## The Breeding Program:

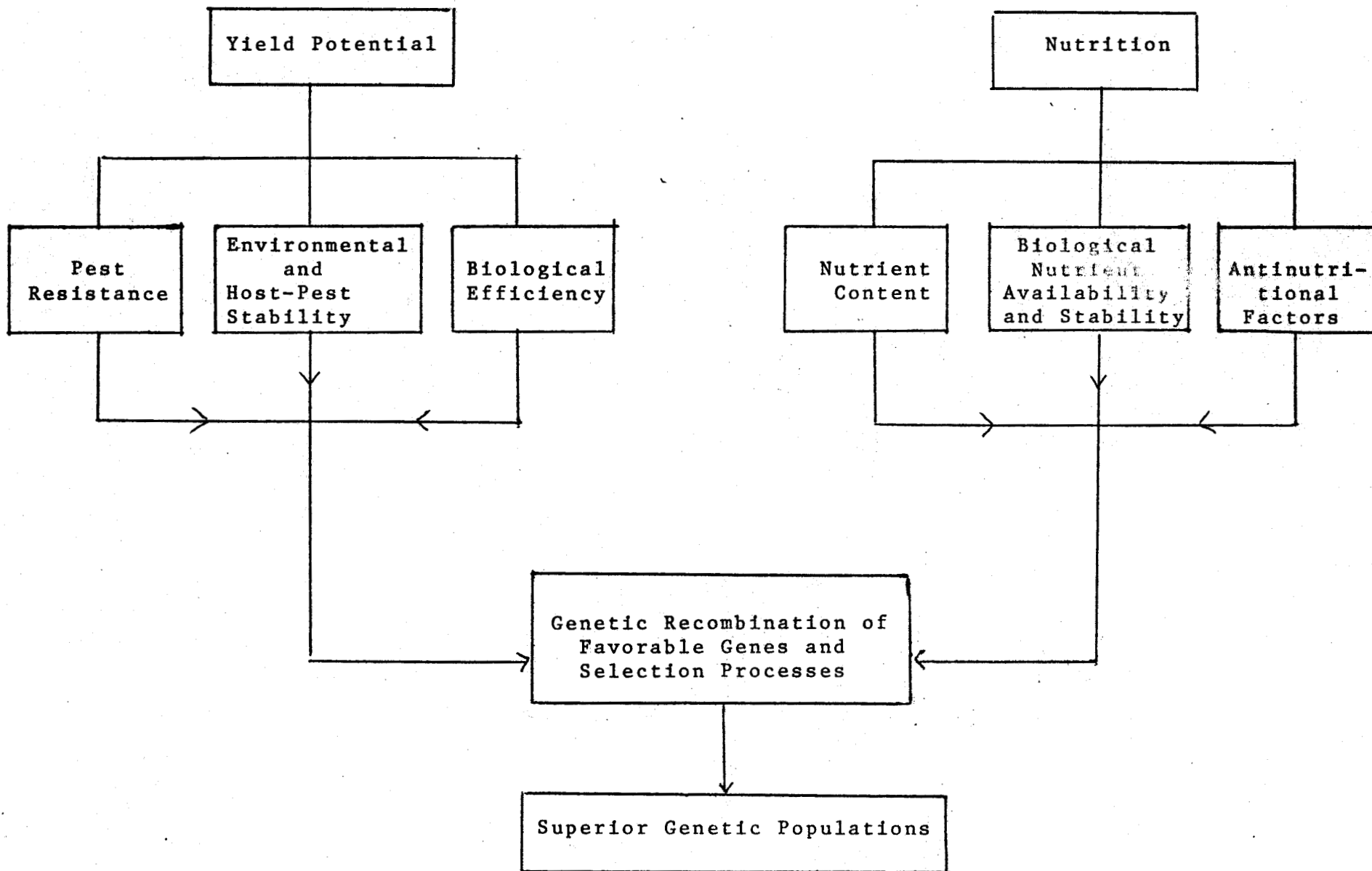
Dr. Coyne explained that his breeding program has been based primarily on developing resistance and/or tolerance to the most serious diseases of beans in western Nebraska. When he started his breeding program (about fifteen years ago), he teamed up with Dr. Schuster who has ever since been a valuable and dedicated colleague in assisting him in breeding for resistance to the bacterial diseases. The first disease for which resistance was sought was bacterial blight and subsequently bacterial wilt. It was necessary to make crosses with bean types other than Great Northern in order to obtain the level of resistance (actually tolerance, because the disease organism may multiply some within the plant but to a significantly lesser degree) needed to be of value under field conditions. In some instances intergeneric crosses were made utilizing a special embryo culture technique to consummate the cross and grow a seedling. Through such techniques it was possible to obtain the necessary tolerance to the bacterial blight diseases but not without having the problems.

The first major problem was late maturity in the bacterial blight resistance lines as the resistant parent was a long-season type. Through genetic studies and subsequent genetic manipulation, Dermot has been able to combine short season and blight resistance.

The first successful bacterial blight resistant variety was Tara. This variety does extremely well on warm, sandy soils but because of its late maturity and heavy vine growth, it has not been acceptable on the heavier soils.

As the bacterial blight and wilt programs progressed successfully, another disease became of paramount importance -- white mold. At first it was believed that genetic resistance to white mold was absent. However, it was discovered that Black Turtle Soup variety actually had genetic resistance to the white mold organism of western Nebraska. Also, concurrently, it was discovered that Aurora variety had a plant architectural arrangement (an open canopy) that acts as an escape mechanism to the white mold disease although the tissues are completely susceptible.

Figure 1. Flow chart showing the relationships of the main areas of project research in order to realize the objective of genetically improving beans for yield and nutrition. (Hopefully will become a national project that will involve all U.S. scientists involved with beans.)



The breeding program has become much more complicated as each new disease is added. White mold resistance is being bred for from both the standpoints of the true genetic resistance and architectural escape. Besides Black Turtle Soup, Scarlet Runner variety is also another source of genetic resistance. Some of the crosses are now in the F<sub>4</sub> and F<sub>5</sub> generations. By growing one generation in the field during the summer and two generations in the greenhouse at the Panhandle Station, the varietal development can be greatly hastened.

The white mold screening in the field is done by planting in sclerotia infested soil and surrounding the plot with corn so as to produce a favorable environment for the white mold. This has worked very satisfactorily.

The screening for resistance to the bacterial diseases is by a water soak technique which Dr. Schuster contributed to the breeding program. In essence, the technique simply drives bacterial contaminant water through stomatal openings into the intercellular spaces.

Besides incorporating resistance to three diseases, the breeder must consider many other crucial genetic factors such as plant architecture, seed coat characteristics, yield, cooking quality, maturity and other factors.

There are two basic architectural types--vining and bush. Because of white mold disease and agronomic considerations, it is desirable to have an upright, open canopy.

#### White Mold Epidemiology:

Dr. Steadman has been conducting research on white mold the past five years and to a lesser extent on root rot. Jim has had two Doctoral students (Gilbert Cook and Howard Schwartz) do their thesis on the etiology and epidemiology of white mold. Also intensive studies were made on the transport of the white mold and bacterial organisms in irrigation water.

Enormous strides have been made in understanding the source of initial inoculum, the significance of flower infection and many other intricacies in relation to the epidemiology of the disease. The status of this fundamental information is that it is now a firm base upon which applied research can be conducted in the study of methods to control or minimize the disease in the field.

Four years ago at our first bean conference very little was known regarding the etiology and epidemiology of white mold in western Nebraska. The vast amount of information now accumulated and the fact that a breeding-for-resistance program is well down the road, attests to the ingenious, viable and energetic research staff working in the area of beans.

Micrometeorology and White Mold:

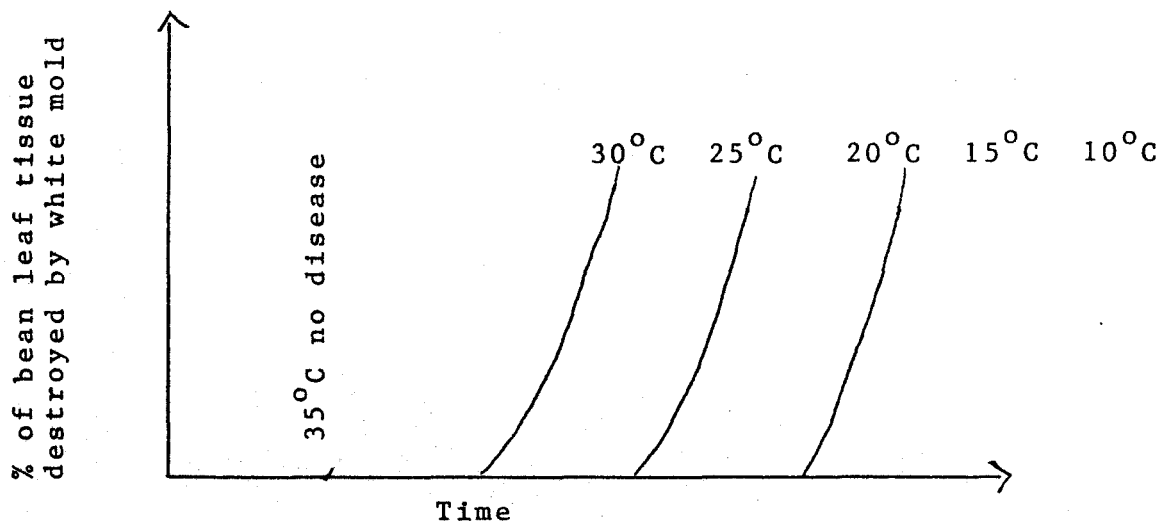
The micrometeorology program at the Panhandle Station is not only unique in its being located there but it is an extremely useful science in the study of epidemiology of the white mold disease within the crop canopy. Dr. Blaine Blad has been conducting detailed studies on the relationship of architectural type and irrigation frequency to white mold development. This has significance in being able to minimize white mold by selection of architectural type and irrigation practices. In summary, his data can be charted as follows:

<u>Variety</u>	<u>Irrigation Frequency</u>	
	<u>5 day interval</u>	<u>10 day interval</u>
Tara (heavy closed foliage)	Heavy white mold temp. = coolest dew period= longest	Moderate white mold temp. = little higher dew period= little shorter
Aurora (upright, open foliage)	Very low white mold temp. = higher dew period= shorter	Negligible white mold temp. = highest dew period= shortest

Blaine's data showed that there were definite differences in temperature and dew periods among the treatments. Both Tara and Aurora are highly susceptible to white mold but architectural type and irrigation frequency can have a significant influence on the microclimate which in turn influence the disease intensity.

Infection Criteria:

Drs. Weiss and Kerr are presently in the course of study of the infection and subsequent progress of the disease organism in the tissues at various temperature levels. These studies are being conducted in a growth chamber at the Scotts Bluff Ag. Lab. Thus their data can be generalized by the following illustration:



The disease will not develop at 35° C. These researchers have conducted studies at 30°, 25° and 20° C and find that infection and disease development occurs at these temperatures but the rapidity of disease development is slower as the temperature lowers. They will run tests at 10° and 15° after which develop a mathematical prediction scheme for white mold.

#### Irrigation in Relation to White Mold:

Dr. Edling commented that there was less white mold under sprinkler irrigation. It was not possible to attribute specific reasons for this phenomenon as it was pointed out that ditch water brings in sclerotia whereas pump water is free of sclerotia. This discussion led to the fact that there is not very much information on the bean microclimate in a sprinkler irrigated field and that this should be looked into.

#### Chemical Control of White Mold:

Jim Steadman said that Benlate (benomyl) is toxic to white mold but in the spray trials conducted at the Panhandle Station it has not given significant control. Benlate is a systemic which is transported outwardly only. Many methods of application have been tried in attempting to get successful control with Benlate. At the moment, this does not appear to be a promising method. Also, it is known that strains of white mold can develop against white mold.



## CONCLUSIONS

1. The most important void at present is a strong dry bean extension program. During the intervening four years since the first conference, research has been very active and has developed a good informational base upon which a strong extension program can be developed.
2. New varieties developed by Dr. Coyne have survived and continue to be grown even though they received minimal promotion and in some instances active discrimination.
3. It appears that there is a good potential for an important dry bean certification industry in Nebraska.
4. The present business relationship of dealers and the Idaho produced seed must be fully understood as we move to encourage increased certified seed production in Nebraska.
5. It is highly desirable that the growers be organized in association with the dealers so that the entire industry has common objectives and goals to which it is working.
6. Excellent progress has been made in incorporating bacterial and white mold disease resistance in potential varietal material.
7. A list of all of the major requirements for a successful variety should be summarized to assist Dr. Coyne in his breeding program.
8. Excellent progress has been made in understanding the etiology and epidemiology of white mold through the researches of Dr. Steadman and his graduate students.
9. Excellent progress is being made of the use of the science of micrometeorology in measuring the microclimate within various types of canopy and determining the climatic factors (temperature, moisture, light) in relation to infection and subsequent disease development.
10. The common governmental sources of funds for research are inadequate. A check-off system for research funds should be encouraged.
11. These discussions reveal that interdisciplinary cooperation has been excellent in the dry bean research.



# COOPERATIVE EXTENSION SERVICE

PANHANDLE STATION

SCOTTSBLUFF, NE 69361  
PHONE 632-2711

December 9, 1976

*Institute of Agriculture  
and Natural Resources*

To: Agricultural Agents of District I

Monte Hendricks  
Mick Evertson  
Densel O'Dea  
Frank Whetzal  
Ray Sall  
Roger Wilson

Howard Henschel  
Don Huls  
Dean Robinson  
Larry Hannon  
Mick Sandine

Subject: Making the dry edible bean producers aware of the research being done on dry beans by University of Nebraska scientists

Gentlemen:

The quantity and quality of research being conducted on dry edible beans by our own University scientists is as fine as at any other institution in the U.S. Yet, our own bean producers are not really aware of this fact. It would be highly desirable that they become fully informed of this work and to know the researchers, at least their names and the area of research in which they are involved.

During the recent NACEB Meeting at the Panhandle Station I had the opportunity to talk with Monte Hendricks, Mick Evertson, Densel O'Dea and Roger Wilson regarding this problem. As an initial start, Monte made the suggestion that an "ad hoc" dry bean advisory group be formed. County agents would select several key growers who would be good thinkers and interested in giving guidance. I personally feel that this suggestion has a great deal of merit, and I would like to implement it.

I realize that some of the counties are not heavily involved in bean production but nevertheless they may have growers who would be very interested. The rapid development of center pivot systems throughout the Panhandle has done much to change wheat fields and pasture land to beets, beans or corn. In fact, these isolated center pivot fields could very well be a major asset in developing our own bean seed industry. At present that industry is based in Idaho but it is a proven fact that certified beans can be grown in western Nebraska and isolation from other fields is a decided asset.

In recent years Dr. Dermot Coyne has developed varieties resistant to the common bacterial diseases. White mold disease however has been the big threat to the grower these last few years.

Resistance to white mold was found a few years ago and a breeding program was instituted to incorporate that resistance into the

EXTENSION WORK IN "AGRICULTURE, HOME ECONOMICS AND SUBJECTS RELATING THERETO,"  
THE COOPERATIVE EXTENSION SERVICE, INSTITUTE OF AGRICULTURE AND NATURAL RESOURCES,  
UNIVERSITY OF NEBRASKA-LINCOLN, COOPERATING WITH THE COUNTIES AND THE U. S. DEPARTMENT OF AGRICULTURE

Agricultural Agents

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Great Northern type bean. Dr. Coyne, in cooperation with Dr. James Steadman of Plant Pathology, is making good progress along this line but it will take a number of bean generations before a white mold variety of suitable market quality will be available. When this does occur that variety will be in tremendous demand.

I would be very appreciative if you would give me your reaction to Monte's suggestion on having an "ad hoc" dry bean advisory group. If your reaction is positive, send me the names of 3 or 4 people whom you suggest. I will then get together with Monte, and we will begin making positive plans on getting together.

Sincerely,

John L. Weihing  
Director

JLW:mm

cc: Dr. Lloyd Andersen

THE UNIVERSITY OF NEBRASKA-LINCOLN  
LINCOLN, NEBRASKA 68583



Institute of Agriculture  
and Natural Resources

Reply to:  
Panhandle Station  
4502 Avenue I  
Scottsbluff, Nebraska 69361  
Phone: (308) 632-2711

January 17, 1977

To: Monte Hendricks  
Mick Evertson  
Howard Henschel  
Roger Wilson  
Densel O'Dea  
Larry Hannon  
Ray Sall  
Don Huls

Subject: Meeting of the Dry Bean ad hoc Advisory Committee that  
you selected.

Gentlemen:

First I wish to thank you for the fine cooperation that you  
have given me by suggesting a number of people who will act as an  
"ad hoc" dry bean advisory group.

Apparently, the earliest date without serious conflicts on  
which we can all get together is February 11 (Friday). It is a  
holiday for some of the counties. However, the agents in those  
counties have indicated they would come anyway even though that  
date may be selected. Therefore, the meeting will be:

Date: Friday, February 11

Time: 1:30 p.m.

Place: Room 106, Panhandle Station

I advise that each agent be responsible in notifying his  
members and seeing that transportation is arranged. Agenda items  
will be:

Purpose of the committee.

Summary and discussion of the dry bean research programs.

The need for cooperators to have dry bean varietal test plots.

Bean Certification.

The committee's thoughts on development of a dry bean  
extension program.

Report on the Rocky Mountain Bean Dealers Research Committee.

We look forward to meeting with and working with your committee.

Sincerely,

John L. Weihing  
Director

JLW:mm

cc: Dave Nuland

SUMMARY OF THE NAMES OF THE PEOPLE WHO HAVE INDICATED  
THAT THEY WOULD BE WILLING TO SERVE ON AN "AD HOC"  
DRY BEAN ADVISORY COMMITTEE FOR DISTRICT I

Scotts Bluff County

Monte Hendricks - Agent  
Harold Bartz  
Donald Tripple  
Alex Welsh  
Robert Kiesel  
Larry Knipp  
Richard Powell

Cheyenne County

Howard Henschel - Agent  
Donald Benish  
Harold Draper  
Steve Hopkins, Jr.  
Floyd Stoll

Garden County

Larry Hannon - Agent  
Bill Phillips  
John Densel  
Melvin Sink  
Terry Jessen

Deuel County

Ray Sall - Agent  
Allen Klingman  
John Palser  
Mike Kimberly

Kimball-Banner Counties

Mick Evertson - Agent  
Alvin Hisey  
Penrod Reader  
Howard Barrett  
Kenneth Mossberg

Box Butte County

Roger Wilson - Agent  
Ken Hennings  
Ralph Lockridge  
Don Haas  
Norman Anderson  
Conrad Schnell

Morrill County

Densel O'Dea - Agent  
Niel Batterman  
George Hall

GENERAL SUMMARY OF UofN SCIENTISTS CONDUCTING RESEARCH  
WITH DRY EDIBLE BEANS

<u>Areas of Research</u>	<u>Research Workers</u>
Varietal breeding and genetics	Dr. Dermot Coyne
Varietal evaluation	Mr. Frank Anderson (Nuland also in 1977)
Plant Diseases:	
White mold and root rots	Dr. James Steadman
Bacterial diseases	Dr. M. L. Schuster
Extension and some white mold research	Dr. Eric Kerr
Insects and their control	Mr. Arthur Hagen
Weeds and their control	Dr. Robert Wilson
Plant microclimate as related to white mold infection and development	Dr. Albert Weiss Dr. James Steadman Dr. Blaine Blad
Relationship of irrigation practices and white mold	Dr. James Steadman Dr. Albert Weiss Dr. Blaine Blad Mr. Larry Hipps (G.S.)
Laboratory testing of seed lots for bacterial diseases	Dr. Eric Kerr
Growth hormones	Mr. Louis Daigger Mr. Frank Anderson
Soil fertility and plant nutrition	Mr. Frank Anderson
Irrigation	Dr. Robert Edling Mr. Walter Trimmer
Foundation seed	Mr. Frank Anderson

THE UNIVERSITY OF NEBRASKA-LINCOLN  
LINCOLN, NEBRASKA 68583



Institute of Agriculture  
and Natural Resources

December 28, 1976

Reply to:  
Panhandle Station  
4502 Avenue I  
Scottsbluff, Nebraska 69381  
Phone: (308) 632-2711.

Harold Thorson  
Brown Bean Company  
Morrill, Nebraska 69358

Dear Harold:

Enclosed is the count of split beans in STAR variety from the sample taken by Bill Gingery for the bacterial blight assay. Since your remark about STAR having a heavy instance of split; I thought it might be wise to check this out. From the enclosed table you can see that perhaps it is a factor of grower rather than the bean, with very low instances of splitting in some cases and high in others. I thought you might be interested in this information.

Sincerely,

*Frank N. Anderson*  
Frank N. Anderson

Assoc. Professor of Agronomy

FNA:meh

Enclosure

cc: Dermot P. Coyne  
Dr. John L. Weihing

NUMBER OF SPLIT BEANS IN SAMPLES OF  
STAR VARIETY TAKEN FOR BLIGHT EXAMINATION

Grower	Variety	Split Beans %
Brown Bean	Star	10
Panhandle Station	Star	3
Birdsall	Star	1
Kniss	Star	3
Batterman	Star	2
Welsch	Star	7
Schreiner	Star	2
Herman	Tara	3
Hall	Tara	7
Hall	Valley	9
Batterman	Valley	2
Lockridge	Valley	4
Lockridge	#1	2
Sugano	111 Pintos	3