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## TECHNOLOGY TRANSFER: A CO-OPERATIVE APPROACH

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Public and private sector co-operation is needed to facilitate technology transfer to agricultural producers. Producers require specialized information to make informed management decisions. The fertilizer and herbicide industries are examples where technology has significantly increased the complexity of producer's decision making. Public and private agronomists should work together to provide producers accurate and up-to-date farm management information.

Co-ordination of extension efforts is essential to provide quality programming and to avoid confusion in the farming community. Public and private sector agronomists have expertise to help farmers adopt new and improved management practices. Agronomists should combine expertise and skills to assist farmers in developing viable farm units. Change agents such as agricultural representatives have numerous opportunities to involve the private sector in extension programs.

References from an extension program manager, an industry agronomist and a university scientist will be cited to illustrate the need for private and public sector co-operation in technology transfer. Larry White, a regional director with Saskatchewan Agriculture, says the agricultural representative's office is more important than ever as the centre of extension in the district. The Ag. Rep. office provides stability, continuity and permanence. Because private

agronomists are generally sales oriented, public sector agronomists are responsible for local agricultural programming (e.g. drought, insect infestations, livestock nutrition)

The regional director states we should not think of private and public sector as being in competition but rather as complimentary to one another. The private sector can provide product details. The public sector can provide the knowledge of local conditions. He says farmers need both private and public sector agronomists. The public agronomist is well recognized as a source of unbiased, local information and farmer needs.

Dr. Jim Beaton, North-West Director of the Potash and Phosphate Institute of Canada, discussed the changing role of the industry agronomist. In the past, industry agronomists played an active role providing dealer education and technology transfer to agricultural producers. Industry agronomists currently represent the fertilizer industry on various advisory councils, committees, symposia and annual workshops. He says industry agronomists play a key role in providing liaison with research and extension personnel.

Dr. Beaton states the industrial agronomist of the future will be an even more important integrating mechanism between technology, agribusiness and the farming industry. Intensified specialization at the teaching and research levels has made it increasingly difficult for scientists to be in direct contact with farmers. Dr. Beaton says the level of specialization has reached the point where it is next to impossible for the extension agent to serve as the sole bridge between research

laboratory and the farm field. The scientist says the industry agronomist has a responsibility to upgrade professional competence to help fill this gap.

Dr. Don Rennie, Dean of the College of Agriculture, University of Saskatchewan, states the leadership the private sector is providing to technology transfer is to be commended. He says although industry guidelines may not always be correct, the chances they will be wrong are infinitely less if government and university agronomists provide co-operation.

The noted scientist foresees difficulty in providing enough public sector agronomists to meet the agricultural industry's demand for technology transfer in the months and years ahead. He predicts development of computer assisted technology transfer will be of major assistance and says we will need strong input from industry agronomists, particularly in the herbicide area.

Dr. Rennie suggests farmers experience difficulty in adopting new technology because they often miss a key practice. Examples are the problems farmers have in adopting extended crop rotations. According to Dr. Rennie, more technical information is needed at the farm level to help producers adopt innovative management practices. He stresses the importance of having public and private sector co-operation in technology transfer.

An example of private and public sector co-operation in an extension program was the third annual Herbicides in Agriculture Seminar held in Regina. The seminar was sponsored by local rural municipalities and the Crop Protection Institute of Canada in co-operation with Saskatchewan Agriculture.

The profile of District #14 includes seven municipalities in the Regina area which represent approximately 2300 agricultural producers within a 25 mile radius of Regina. District #14 forms part of the south-east region of Saskatchewan Agriculture. Grain farming is the predominant type of farm enterprise and includes production of cereals, oilseeds and specialty crops. The Ag. Rep. office receives a steady flow of producer inquiries regarding pesticide recommendations.

Meetings with municipal councils and the District Agricultural Board are among methods used to identify agricultural needs or problem areas. Members are respected opinion leaders in local communities and represent developing and commercial producers. Councils identified a need to have more information regarding new technology in herbicides. Members said crop losses due to annual or perennial weed competition is a continuing problem. Concern was expressed regarding the proliferation of herbicide products and the difficulty making informed choices. Members expressed concern regarding differing recommendations in private and public sector publications. Producers said more information should be provided regarding cultural weed control.

The Herbicides in Agriculture project objective was to have producers learn integrated control of specific problem weeds as a means of increasing crop production. Consultations were held with Saskatchewan Agriculture Extension staff, Research Station scientists and representatives of the Crop Protection Institute of Canada to plan the seminar format and expand key subject areas. The Crop Protection Institute of Canada obtained

suitable facilities and allocated industry display space.

Resource people with specialized expertise were selected from research, extension, industry and university sources to present material at the seminar.

A variety of approaches were used to promote the seminar and obtain producer registrations. An advertising flyer which outlined seminar topics, resource people and how to register was mailed to district farmers. A series of radio interviews were done on local radio stations to zero in on key topics and speakers. The Ag. Rep. also personally contacted District Board, municipal council and committee members to advertise the seminar. Producers were asked to pre-register by contacting the Ag. Rep. Office. Approximately 200 producers registered for the seminar by March 1.

The seminar was held on March 5, 1985 at the Centre of the Arts, Regina. The registration desk was handled by District Board Members and Municipal Councillors. Producers were charged a \$5.00 registration fee which included refreshments and a noon meal. Five local municipalities provided cash sponsorship. The seminar was attended by 225 local and district producers. This compares to 200 producers in 1983 and 210 in 1984.

Resource people were from a variety of sources. Public sector agronomists included Adrian Johnston, a Soils and Crops Specialist with Saskatchewan Agriculture. He described new herbicide products including their mode of action, breakdown or residue considerations, cropping intervals and compatible tank mixes. Lloyd Harris, our provincial Entomologist,

presented an Insect Update which included life cycle and control of problem insects including grasshoppers, cutworms, wheat midge and grain beetles.

The local Ag. Rep. was co-ordinator and chairman of the seminar and gave a presentation on Pesticide Safety. Items discussed included how safety recommendations are developed and how pesticides are registered.

Resource people from the research field included Dr. Jim Hunter, a noted weed control scientist from the Agriculture Canada Research Station in Regina. Dr. Hunter discussed Canada Thistle control including characteristics, growth habits and how they relate to control. The second research representative was Lyle Alspach, a herbicide specialist with PFRA Tree Nursery who discussed weed control in farm shelterbelts. He outlined application and use of pre-emergent and post-emergent herbicides for shelterbelt weed control.

The industry resource person was Aaron Mitchell, a product development representative with Monsanto Canada Limited. Using seven years of company research, he discussed alternatives to conventional tillage. The alternatives involved replacing or reducing fallow operations using chemical weed control. The industry speaker also discussed the economics of alternatives to conventional tillage.

The University resource person was Eldon Norum of the University of Saskatchewan. Mr. Norum is with the Agricultural Engineering department and is involved in teaching and extension. He gave a presentation on herbicide applicators which included new technology in sprayers and granular applicators.

Program format included breaks when producers had opportunities to visit 18 technical displays. Industry representatives paid a major portion of seminar costs including facility rental, refreshments and the noon meal. Displays were provided by representatives of the Crop Protection Institute of Canada, the Saskatchewan Safety Council, the Prairie Farm Rehabilitation Administration (PFRA) and Saskatchewan Agriculture. Producers obtained product information and brochures from various industry personnel.

Information regarding farm size of producers who attended the seminar was obtained during seminar registration. Predominant farm size categories were under 960 acres and 960 to 1279 acres. Seventy percent of participants had farms less than 1279 acres. Producers who had farms 1280 to 1919 acres and 1920 acres and over represented thirty percent of participants. The average farm size in District #14 is approximately 900 acres.

A second pie chart shows age distribution of participants in percent of total number. The three major age groups represented at the seminar were 25 to 34, 35 to 44 and 55 to 64. Sixty-one percent of participants were less than 54 years of age. The average age of farmers in the province is 47.12 years of age.

An evaluation questionnaire was sent out following the seminar to obtain producer feedback on the program. Approximately forty-five percent of participants completed and returned the questionnaire.

The first question asked "How did you hear about the seminar?" The table shows method and percent responses. The most effective methods for seventy-nine percent of participants were the advertising flyer and personal contact by the Ag. Rep. Friend or neighbor and other were effective methods for seventeen percent. Four percent of participants did not respond to the question.

Participants were asked to rate the seminar speakers based on the effectiveness of their presentations. Approximately eighty percent of producers rated the speakers "good" to "excellent". Thirteen percent rated speakers "fair" and only two percent rated the speakers "poor". Five percent did not respond to the question.

Producers were asked what topics they found most usable and why each was usable. The table shows the four topics found to be most usable. The two most popular topics were Canada Thistle Control and New Herbicide Products. Producers gave several reasons why topics were most useful, including "Have an increasing problem on my farm", "Need to use more effective methods", "Makes a person aware what is available", or "Need help and advice". Nearly 100 percent of participants said they intended to use the information.

Producers were asked to rate the industry displays. Eighty percent of participants rated the displays "good" to "excellent", ten percent "fair" and one percent "poor". Nine percent of producers did not respond to the question. Producers found the displays informative and said industry representatives were friendly and helpful.



Feedback was obtained regarding the length of the program. Approximately ninety percent of producers said the length of the program was about right. Only two percent of participants rated the program too long or too short. Eight percent of participants did not respond to the question.

Participants were asked if they would attend another Herbicides in Agriculture seminar. Ninety-four percent said "Yes", two percent said "No" and four percent did not respond to the question. Numerous suggestions were also made regarding weed control and other farm management topics for future seminars.

Follow-up activities included a series of Weed and Sprayer Clinics held in rural areas. The clinics were sponsored by local municipalities and were held in farm or municipal shop facilities. Our Farmstead Engineer, Randy Vopni, gave presentations regarding sprayer nozzle selection, calibration, technology and safety. Producers had an opportunity to test their sprayer nozzles on the patternator which is a model sprayer. Our Soils and Crops Specialist, Adrian Johnston, assisted with the demonstrations and outlined control of specific problem weeds and discussed tank mixing of herbicides. Producers had an opportunity to obtain product information from industry representatives who also provided technical displays. Attendance at the clinics ranged from 25 to 85 producers.

Producers who attended clinics and seminars contacted the office for additional information. Farm visits were made to identify specific weed problems, recommend control measures, or discuss a weed control program.

In conclusion, the private and public sectors play an important role in technology transfer to producers. Experience indicates producers favor involvement of extension, industry, research and university agronomists in agricultural programming. Public and private sector co-operation will become more important as technology increases complexity of farm management decision making. Agronomists must co-operate to help producers increase productivity and improve cost efficiency which are keys to survival of the agricultural industry.

#### REFERENCES

- WHITE; N.L. 1983. Public and Private Agrologists. Saskatchewan Agriculture Staff Conference, Regina, Sask. June 1983.
- BEATON; J.D. 1984. The Changing Role of Industry Agronomists. 20th Annual Meeting of the Western Canada Fertilizer Association, Saskatoon, Sask. September 9-11, 1984.
- RENNIE; D.A. 1985. Technology Transfer - A Co-operative Approach. College of Agriculture, University of Saskatchewan. March 18, 1985.