Final Project Report
A Marketing Approach to Increase Use of a Rootworm Advisory in Peanuts
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The Approach

As the 2002 Farm Bill made dramatic changes to the peanut program, North Carolina peanut growers have faced increasingly difficult economics. Each year farmers are seriously weighing how much peanut acreage to plant or whether to raise peanuts at all. For those who do decide to grow peanuts, some growers continue to insist that maximizing yield is the best path to profitability while other growers are looking for ways to increase efficiency, particularly from their production inputs. For those growers reducing their pesticide costs is another important tool in trying to farm profitably.

Among the tools available for reducing risks has been the Southern Corn Rootworm (SCR) Index. The Index enables growers to score their fields based on factors such as soil type and moisture to determine the risk of rootworm damage to their peanut crop. Based on the risk score (high, medium, low) growers can decide whether to use a soil-applied insecticide, usually chlorpyrifos, for control. In this way the Index leads growers to make decisions based on field conditions and using a scientifically validated model for pest management rather than relying on customary practice. It also provides a way of quantifying the risk that growers intuitively feel about damage from soil insects.

While the rootworm index has been available for ten years and has been extensively validated over the last seven years, growers had not widely adopted this tool despite a four-year, widespread, educational campaign. Survey responses show that while 72% consider SCRW control to always be important, less than 10% are actually using it to make a decision. As a result researchers have estimated that, although only 15% of peanut fields may need insecticide applications for SCR, as much as 65% of the fields are treated in any given year.

In 2001 Center for Agricultural Partnerships (CAP) staff along with Extension and research staff from North Carolina State University (NCSU) and Virginia Polytechnic Institute (VPI) began work to intensify education efforts on the Index and to determine the barriers to adoption. This work built on initial efforts by NCSU, VPI and other organizations. In addition to furthering field understanding of the Index, that project made extensive use of interview and focus group methods to determine how growers make decisions. Those surveys and focus groups revealed the extent to which producers depend upon Extension agents, consultants, and input suppliers to make a decision about treating for SCRW. At the same time, Extension agents in the peanut growing counties indicated that they had heard of the index but they were not comfortable using the index in the field with growers.

This was somewhat surprising given the extent of educational efforts in previous years. However, it also indicated that the standard approach to increasing adoption of new practices by presenting technical information through grower meetings was not sufficient. Given the potential value the Index could have for peanut growers, CAP and NCSU decided to take a different, more marketing oriented approach to increasing use of the Index. The term “marketing approach” in this project meant systematically determining the needs of a well-defined group of “customers” who are central to increasing adoption (Extension agents) and providing them the

tools and opportunities to meet those needs. For example, an early step in the project was re-naming the SCR Risk Index as the Southern Corn Rootworm Advisory to capitalize on grower familiarity with the widely used leaf spot advisory. While information and educational materials were developed for growers through this project, the materials were designed to convey a message rather than to simply provide information. By establishing a recognizable identity, reinforcing messages, and using high production quality the materials developed in the project resemble the "marketing" materials used by private sector distributors more than the usual information materials.

This report describes the activities that took place during the project, summarizes the extensive evaluation of the project efforts and the changes in grower attitudes and actions, and offers summary comments on the project and its approach.

Project Activities

In December 2002, the project convened a roundtable discussion of all the Extension agents from the peanut growing counties in Eastern North Carolina. The discussion centered on what program activities would be of the most assistance in increasing adoption of the Advisory. The agents identified several program elements:

- Get the advisory included in the NCSU peanut production guide.
- Simplify the brochure and put it into a form that can be used with growers.
- Since growers tend to confuse the damage from different insects, develop graphic materials that show SCRW damage and damage from sources often confused with SCRW
- Develop a simple logo to identify the materials
- Create extensive opportunities for growers to work one-on-one with growers

Agents recommended that the messages for the brochure and other materials should be consistent in pointing out that the Advisory is a proven tool for protecting crops and reducing costs that eliminates the danger of increased mite damage and increases net profit.

Based on the Agents' recommendations, project staff developed a revamped brochure, a poster on the advisory, laminated card that showed damage from SCRW and other insects, and baseball caps. All of the materials carried the newly developed Advisory logo to unify and reinforce the communication messages. The first three materials emphasized the economic advantage and the ease of using the Advisory. The caps were collateral materials, similar to those provided by chemical distributors that reinforced awareness of the Advisory. In January 2003, agents were provided the materials for their use in educational sessions at the winter grower meetings.

Of particular importance to the agents was the opportunity to meet and work directly with growers one-on-one. They felt that doing so would be the most effective way to familiarize growers with the value of the tool. In response to their interest, the project agreed to provide support for the travel and information gathering that would be necessary for them to meet with

growers and document the results. Given the significant cuts in state funding for Extension agents, even the modest support provided by the project was influential and very welcome.

At the meeting, the work plan for the Agents' efforts for the coming year was outlined:

Winter Meetings

a. Distribute SCR Advisory brochure
b. Re-introduce web site
c. Post insect damage identification poster

2. **Identify 20 peanut growers who are not now using the SCR Advisory**
   a. Distribute SCR Advisory brochure
   b. Utilize insect damage identification poster
   c. Initiate working with them to promote use of the SCR Advisory
   d. Emphasize profitability, ease of use, low risk
   e. Advisory is a simple tool that can contribute to reducing input costs and increasing income

3. **Meet with growers at decision time (i.e. when they decide whether or not to apply insecticide for southern corn rootworm management)**
   a. Calculate Advisory score for each field
   b. Distribute peanut advisory hat
   c. Explain ramifications of advisory score on production practices
   d. Obtain preliminary indication of intent to apply/not apply insecticide
   e. Provide refresher on insect damage identification and need to take time to do this at harvest

4. **Meet with growers at postharvest time**
   a. Verify insecticide application decision
   b. Record yield
   c. Distribute damage identification cards
   d. Distribute and assist in conducting economic analysis (as suggested on back page of brochure and on web site)
   e. Assist in measuring and recording any damage caused by southern corn rootworm
   f. Record overall comments about SCR Advisory, yield quality, economics as well as extent of intent to utilize SCR Advisory in 2004
   g. Submit summary of each grower for evaluation

At the winter growers meetings, held in January and February 2003, presentations were made on the Advisory and the project to nearly all of peanut growers in the state. Growers were also surveyed to determine their awareness and confidence in the Advisory. Again, using a more market-oriented approach, the project surveyed growers at the meeting. To encourage growers to fill out the survey a drawing was held from the completed surveys, with the winner receiving a chain saw. As a result the survey included more than 80% of the peanut growers and was more cost-efficient than phone or mail surveys.

During the growing season the Agents, joined by a crop consultant, met with growers and worked through using the Advisory to score their fields and determine the pest management

programs. At harvest they met again with growers to determine the level of damage from SCRW in their fields. In December 2003, the Agents assembled for a debriefing session in Williamston to discuss project results. It was agreed that the evaluation of the project would be conducted through a compilation of their field evaluation forms and through a phone survey of growers. The agents indicated their appreciation for the opportunity to work with growers, were more confident in the Advisory, and very appreciative of the support provided by the project.

Evaluation

The success of the project in achieving its objectives and the effectiveness of its approach was assessed through a survey of growers, the evaluation forms filled out by the Agents, and through interviews with the participating agents. The first survey, mentioned above, was conducted to establish a baseline of awareness. A second follow-up survey was conducted by phone interview rather than by the direct survey method used for the baseline, since the project grant period necessitated that the survey be completed prior to the winter education meetings.

Assessment of field results was accomplished by compiling and analyzing the evaluation forms filled out for each of the 143 participating growers. Surveys were designed by project staff and Dr. Steve Lilley, North Carolina State University. Survey results were complied by the Center for Urban and Community Services at NCSU. Analysis of the evaluation forms, comparison of survey results, interviews with Agents and the overall evaluation report were prepared by Elizabeth Adelski, a private consultant who has worked with NCSU, US Agency for International Development, and the World Bank.

Survey Results

Growers' exposure to and confidence in the SCR Advisory evidently increased between 2003 and 2004. In 2003, 37% of the growers interviewed had not heard or read about the SCR Advisory and 45% had heard/read about it two to five times. By 2004, only 12% of growers had not heard or read about the SCR Advisory and 63% had heard/read about it two to five times. Growers' major sources of information about the Advisory were farm magazines and extension meetings. In 2004, Extension agents' visit and extension newsletters were a major source of information about the Advisory. The proportion of growers that felt the SCR Advisory was "very effective" for managing SCR increased during the project. In 2003, 40% of growers reported that the Advisory was "very effective" for managing SCR; in 2004, that figure was 63%.

Almost three-quarters of growers said that their pesticide application was about the same the two years before they were interviewed. However, some growers identified the SCR Advisory as a leading influence on using less pesticide. By 2004, more growers (27%) cited the use of theSCR Advisory contributed to using less pesticide. Agricultural consultants' advice and scouting/trapping results were reported by 24% and 21% of growers, respectively, as other factors that influenced them to use less pesticide. Exposure to and experience with using the Advisory through the project apparently had some effect on growers' pesticide use.

Over two-thirds of the growers whose pesticide application was "about the same" in the two years before their interviews cited agricultural consultants' advice, other experts' advice, and agricultural media reports as major influences on their pesticide use. The growers' responses suggest that further project work with these three groups may well be warranted, in order to increase their knowledge about the Advisory. The results indicate that rationalizing pesticide

use based on the Advisory will require working with growers' advisors, as well as with the growers.

Field results

The extension agents and consultant worked with 143 growers to use the SCR Advisory to score a total of 608 fields. About two-thirds of these fields were up to 20 acres in size and about one-third were 21-227 acres. Using the Advisory to determine their potential for SCRW damage, 41% were low-risk, half were moderate, and 7% were high-risk. Forty percent of the low-risk fields were treated with insecticides, contrary to the SCR Advisory's recommendation, and 58% of the moderate-risk fields were treated. Two fields in the high-risk category were not treated. One of the two growers who had these high-risk fields did not treat because he had noticed "very little damage" and was "watching the soil moisture."

The growers who had fields in the low-risk category and did not apply insecticides expressed confidence in the tool and an interest in saving money. One grower said that he was very pleased with the Advisory and that he had “always used to treat 100%." Those growers who treated low-risk fields reported the extremely wet 2003 growing seasons as the reason most often cited. "It wasn't a year to take any chances" as one said. Some growers had planned to follow the SCR Advisory recommendation but treated because of the rain. Other reasons such as the convenience of treating all the fields and risk aversion were also cited.

The growers were also asked if they intended to use the SCR Advisory next year. Seventy-six percent said "yes," and 24% said "no." The exception to this was in Edgecombe County, where insecticides generally are not used for SCR control, and 75% of the growers reported that they did not intend to use the Advisory next year.

Growers’ willingness to use the Advisory in the future was the most important indicator of its value and the success of the project. It shows that the vast majority of participating growers are willing to consider field information in making decisions whether to use an insecticide.

Agent interviews

The Extension agents had a positive evaluation of the project and the SCR Advisory, and reported that the great majority of growers had positive reactions to the Advisory. Both agents and growers felt that the Advisory was a sound tool for assessing the need for using insecticide and therefore potentially cutting input costs on peanut production.

Overall, the agents reported that the SCR Advisory was a good tool for determining the need to apply insecticide and for reducing production costs. One agent stated that "the Advisory is simple, flexible, easy to understand, clear and concise. It is a good tool to help growers make good management decisions. It fits a lot of different scenarios and is applicable across a broad range of situations regardless of producer."

The extension agents were also asked if the project's approach to working with growers was effective. The uniform response was "yes." The agents said that the project's resources allowed them to work one-on-one with growers, which was effective. Several statements illustrate the Agents’ assessment: "This had to be a hands-on, on-the-farm project, to show growers that the Advisory works" and "...sometimes it's just better to talk with people face-to-face and put the Advisory in their hands. Meetings and newsletters are just not the same as saying, 'let's look at

your fields and use the Advisory and see where your fields fall.' This approach involved the agent on a one-on-one basis and I think that's the way to go: it was good, gave us options for getting us involved as we felt necessary. The project did more than just putting information out there and just letting growers use it if they wanted."

The extension agents reported that of the training materials (the SCR Advisory as a trifold brochure, laminated cards showing SCR damage, caps, and posters) the brochure was the most useful for their work, followed by the card that showed SCR damage and the hats that they gave to growers. One agent said, "The color copies of the brochure stood out better; it may have been an extra expense but it was probably worthwhile." The posters apparently were not very useful, although the agents did not say so directly. However, they all said that the project's training materials were sufficient for their work; "brochures and hats is all I need," as one agent said.

The full evaluation report is attached.

Conclusions It is clear from the survey results and the experiences of Agents in working with growers, that awareness and acceptance to the Advisory increased during the project. Pesticide use patterns changed and growers applied less insecticide than in previous years. However, the use of the Advisory cannot be judged solely on the reduction of pesticide use in a given year. Using the Advisory in making a decision based on field information rather than relying solely on past experience or "calendar spraying" is a significant step forward in IPM adoption. As the higher scores for certain fields indicated, the Advisory indicated that some fields did warrant application because risks for infestation were high. In addition, the grower interviews showed that growers very much took soil moisture into account as part of their decisions to spray or not. By increasing the extent to which growers used information to make more sophisticated decisions based on scientific observations, the project was extremely successful in increasing grower and Extension agent confidence in IPM tools.

The unique approach of the project made those changes possible. Having recognized the key role that Extension agents play in the adoption of IPM, the project systematically determined what methods could best help them work with growers. As a result the agents gained confidence in the Advisory that translated into greater grower awareness and use. The confidence of the agents provides a solid long-term basis for extending grower use in coming years.

While the term "marketing" approach may seem unfamiliar to those traditionally involved in agricultural technology transfer, the project's approach made good sense as a logical step beyond simply providing information. Dealing with the need of the people who influence adoption and providing an opportunity for individual contact with end users are incredibly effective in helping farmers change their practices – as any field representative for a private company will confirm. Providing high quality materials that communicate consistent messages to create awareness is an integral part of reinforcing work at the field level. Although such an approach could still be considered innovative in traditional agricultural settings, it has significant potential for furthering adoption of practices that help reduce environmental risks.