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Knowledge, Skills and Abilities Needed in the Precision Ag Workforce: An Industry Survey

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Abstract. *Precision agriculture encompasses a set of related technologies aimed at better utilization of crop inputs, increasing yield and quality, reducing risks, and enabling information flow throughout the crop supply and end-use chains. The most widely adopted precision practices have been automated systems related to equipment steering and precise input application, such as autoguidance and section controllers. Once installed, these systems are relatively easy for farmers and their supporting agribusinesses to operate and to benefit from. But a more information-intensive set of technologies that are less automated and more knowledge-based will require a higher level of human capability in order to maximize benefits. All of the parameters that lead to yield, such as soil, weather, genetics, nutrient management, and pests/crop protection must be characterized both spatially and temporally, interpreted, and then managed accordingly. As agricultural businesses invest in precision offerings, their capacity to provide these products and services will depend on their ability to hire and retain employees with appropriate knowledge, skills, and abilities (KSA's).*

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A 2015 survey of agricultural retailers was part of a USDA-NIFA Higher Education grant to examine the minimum educational requirements that retailers were seeking in their hires, along with the importance of a list of KSA's for the various positions that they customarily fill. The positions included equipment operators, sales specialists, technical support, and agronomists. KSA's included specifics such as the ability to install, calibrate, troubleshoot and repair equipment, knowledge of precision agriculture software, and also more broad skills such as effective written and verbal communication and abilities related to making agronomy recommendations. As expected, the retailers expressed different educational minimums and different levels of importance for KSA's for the various positions. The retailers indicated that a high school diploma provided a sufficient education base for an equipment operator, a two-year associate's degree was the preferred minimum for tech support and equipment technicians, but a bachelor's degree was preferred for precision sales specialists and agronomists. Overwhelmingly the retailers indicated difficulty in finding qualified candidates, and a predominance of candidates/interviewees with low or deficient capabilities in areas they rated important. The survey was accomplished using email lists from both CropLife and the American Society of Agronomy/Certified Crop Adviser program.

An accompanying survey of educators at universities and community colleges that offer courses, certificates, or degrees in precision farming provides information on how academics are working to address these educational needs related to precision agriculture.

Keywords. *Agriculture, competencies, human resources, salary, skills, technology, precision farming.*

Introduction

The adoption of precision farming technologies and the extraction of their value is dependent on farmers and their service providers and advisers having knowledge about the technologies and in having qualified and competent support. Anecdotal evidence suggests that farmers often lack the knowledge or time to devote to fully capitalize on precision farming, and service providers struggle to find competent individuals to fill their sales, service, and support roles. Universities and community colleges struggle to provide the educational structure necessary to maximize student access to classes that focus on precision agriculture.

The importance of developing the agricultural workforce has been recently highlighted in: 1) the PCAST report to the President on the Agricultural Preparedness and the Agricultural Research Enterprise (Dec. 2012); 2) informal surveys of agricultural employers; 3) an on-line survey of 86 South Dakota farmers; 4) a published survey of agricultural retailers from across the U.S. (Erickson, 2015); 5) focus group meetings in 2013 by the American Society of Agronomy Precision Agricultural Systems community, the ASA/SSSA/CSSA societies book committee, the South Dakota State University College of Agriculture and Biological Sciences, and the Agricultural Interactive Distance Education Alliance (AG*IDEA), an affiliate of The Great Plains IDEA; and 6) published papers where educational needs were outlined (Kitchen et al., 2002).

The findings from these activities reveal that: 1) employers need fully trained precision agronomists and engineers; 2) universities are struggling to meet this goal due to a lack of trained instructors and effective curricula; 3) different employee skill sets are needed for agricultural retail stores as compared to large agricultural manufacturing companies, 4) students are confused by the wide range of programs marketed under "Precision Farming"; and 5) regional coordination and effective curricula are needed.

Part of the reasons for these challenges is that precision farming technologies are in a rapid state of change, and that adopting one technology can depend on the adoption of others, or in causing fundamental changes in how a farm or retail agribusiness operates. Most precision farming technology innovation occurs in agribusiness settings and not in universities. It is difficult for

educators working at a university or community college to stay on top of innovations, considering their workloads in teaching, research, and Extension.

Higher education institutions are gradually, but disjointedly, putting together programs and curricula that educate students for these opportunities. For example AG*IDEA started building a precision certification program two years ago and independently SDSU created a new precision farming minor. Both programs are in the process of identifying desired student outcomes and curricula to meet those goals.

The purpose of the survey was to help guide the developers of future precision agriculture education—to assess current levels of education in the field; what education will be needed in the future for various roles; and to evaluate the skills needed for professionals working in precision agriculture.

Survey Parameters

Work Roles

With input from industry, we identified five common positions that an ag retailer might have on their staff that work in precision agriculture. These include:

Equipment Operator Runs the equipment that applies pesticides and fertilizers to farmer's fields.

Agronomist Provides recommendations on crop and soil management to farmers.

Precision Equipment Technician Installs new precision equipment on implements; troubleshoots and repairs precision equipment ON SITE.

Technical Support Works REMOTELY with farmer customers to troubleshoot precision equipment and software.

Precision Sales Specialist Works specifically with precision equipment sales and support.

Other (survey respondent to fill in)

Skills

We identified ten critical skills needed by those working in precision agriculture. These are skills that might apply more to some roles or less to others from those listed above. But to keep the survey as straight-forward as possible, we asked about each of these skills for each of the positions. See Figure 8 in the results section for a listing of the skills.

Survey Administration

The survey was administered electronically via email and a survey link in mid-July 2015. Two email lists were used: one from CropLife (Meister Media) and another from the Certified Crop Adviser program, administered by the American Society of Agronomy. Each list comprised approximately 10,000 email addresses. Due to the sources of the lists, the survey results are likely more reflective of crop protection, seed, and fertilizer retailers and consultants as opposed to others that may be offering precision services such as farm equipment dealers, farmers, or farm managers. The Human Research Protection Program Institutional Review Board (IRB) determined that the survey met the criteria for exemption under 45 CFR 46.101(b)(2) IRB Protocol # 1506016166. There were 171 respondents.

Survey Instrument

See a document version of the survey instrument in the Appendix. As previously noted, the survey

instrument used was formatted for electronic delivery.

Results and Discussion

Number of Employees and Roles

Fifty three percent of the retail locations who responded to the survey had 10 or fewer total employees, 28% had 11 to 20 employees, and 15% had 21 to 50 employees, with the remaining reporting more than 50. Overall 35% of the employees at these locations were working on precision agriculture, with 27% of employees working full time on precision and 8% working part time.

Distribution of precision work roles (full and part-time) over all respondents was:

28% Equipment Operator

32% Agronomist

12% Precision Equipment Technician

8% Technical Support

11% Precision Sales Specialist

9% Other. Survey respondents mentioned personnel for soil sampling, fertilizer/pesticide/seed treatment mixing, data analysts, truck drivers, accounting.

Existing and Future Education Requirements

We asked survey respondents what levels of education their employees possessed for each of the roles in their location, and also what respondents thought should be the required minimum education level in 5 years for each of the positions.

For equipment operators, most currently have a high school diploma, and 68% of respondents indicated that level of education was sufficient going into the future (Figure 1). Nineteen percent of respondents felt a two- year degree was the minimum education level, and 9% indicated the minimum was a bachelor's degree. Comparing the two graphics indicates that some current equipment operators may be over-qualified with bachelors or master's degrees.

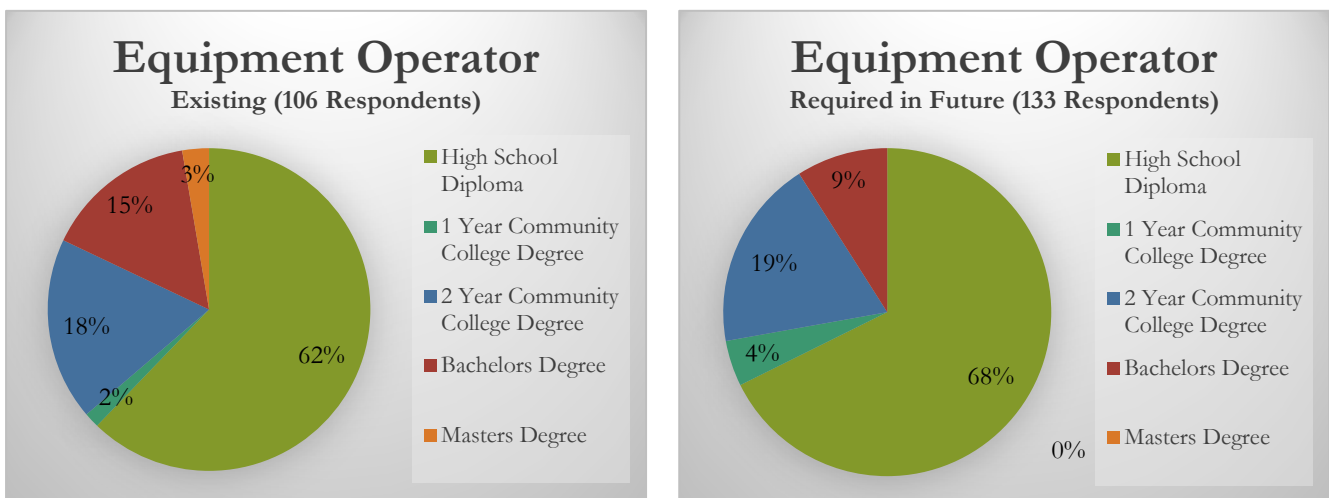


Fig 1. Existing and Future Education Requirements for Equipment Operators

Most agronomists represented by the survey currently hold bachelor's degrees, and that level of education was indicated as the future standard with 71% of respondents, although 11% indicated that a master's degree was the minimum and 15% indicated an associate's degree was sufficient (Figure 2). Currently 10% of precision agronomists have high school diplomas, yet only 3% of

respondents indicated this was sufficient for the future.

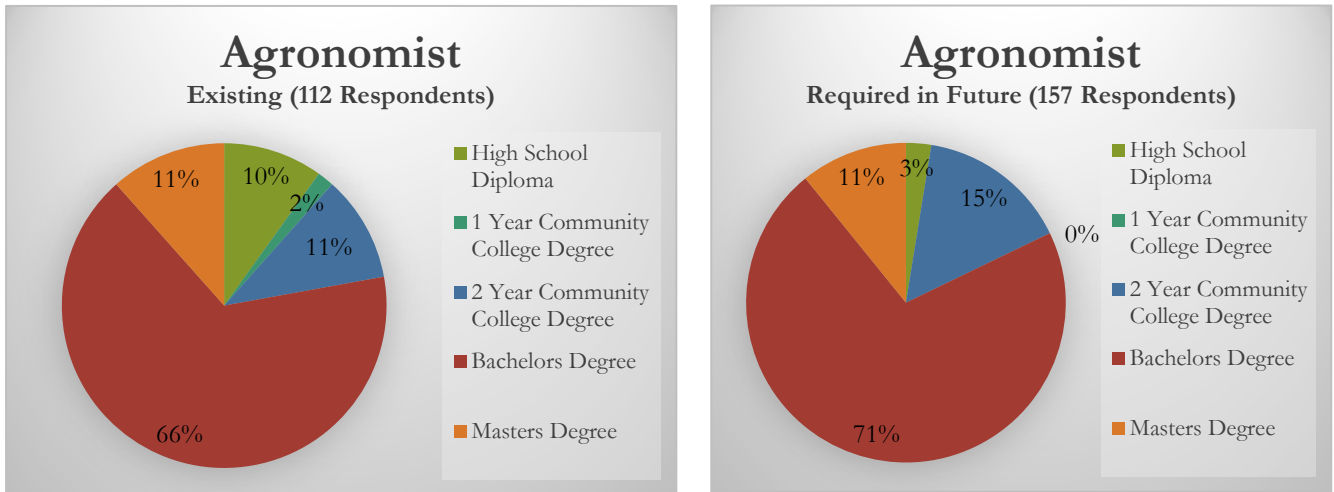


Fig 2. Existing and Future Education Requirements for Agronomists working in precision agriculture.

For precision equipment technicians, currently most have a high school diploma or a bachelor's degree, yet in the future a two-year degree or a bachelor's degree is indicated as the minimum requirement (Figure 3).

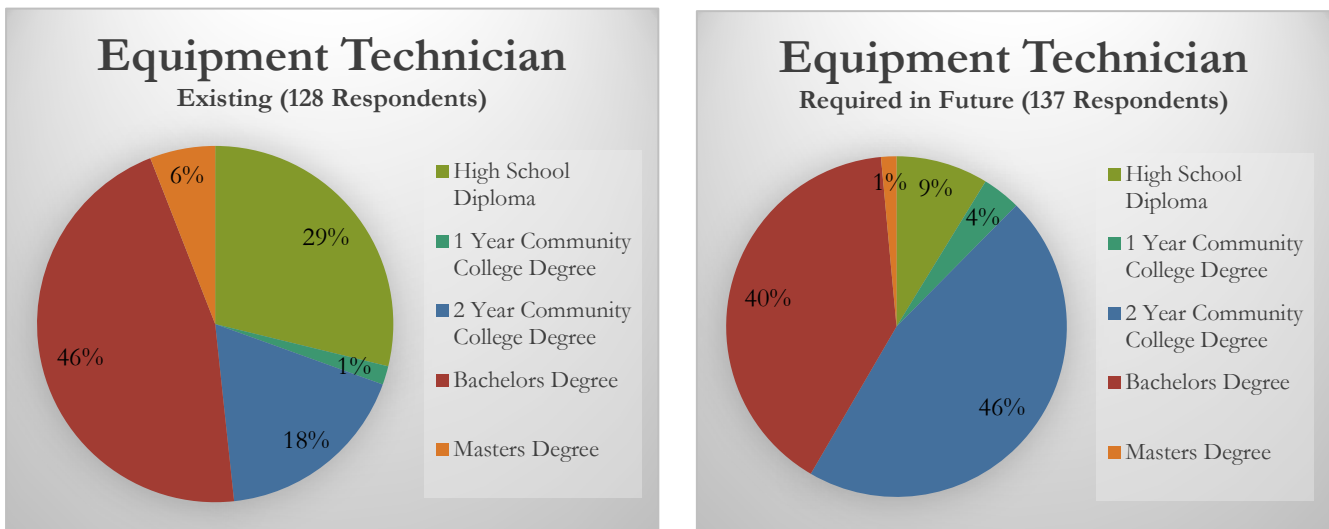


Fig 3. Existing and Future Education Requirements for Precision Equipment Technicians.

For technical support most employees represented in the survey currently have bachelor's degrees, but in the future the survey indicated that an associate's degree will be an acceptable minimum level (Figure 4). Currently many tech support employees have master's degrees, but retailers put little value on that additional degree.

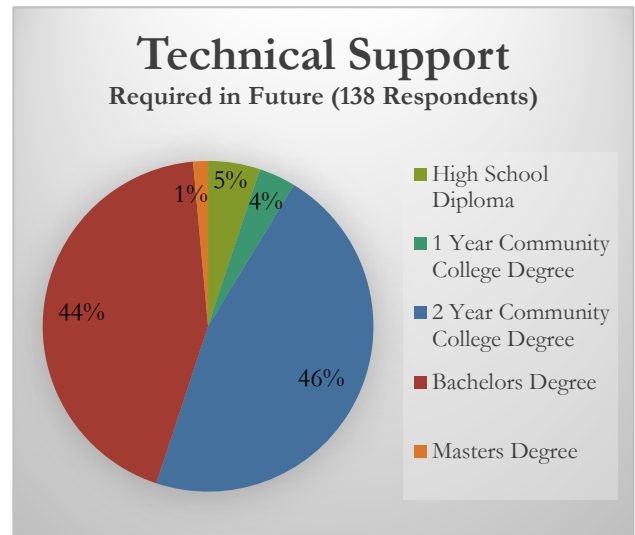
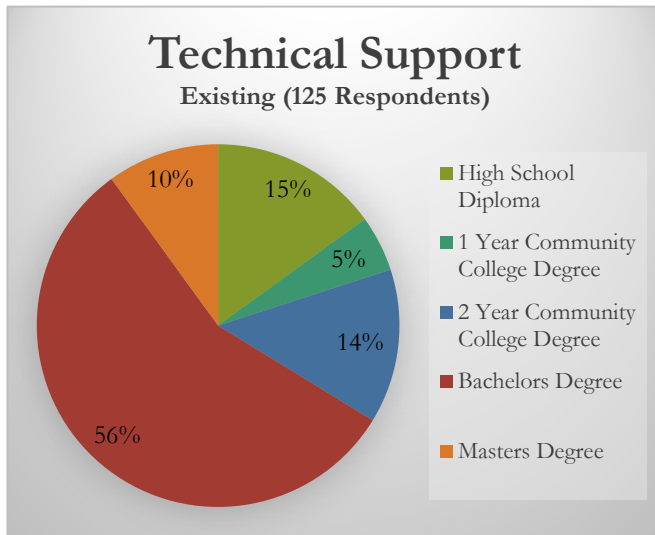
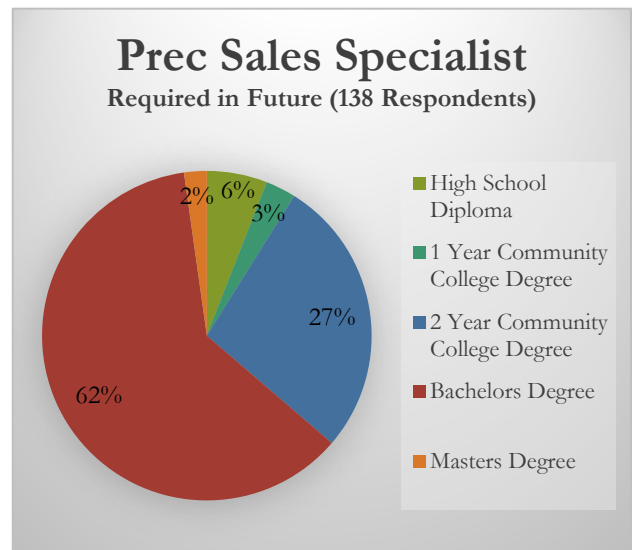
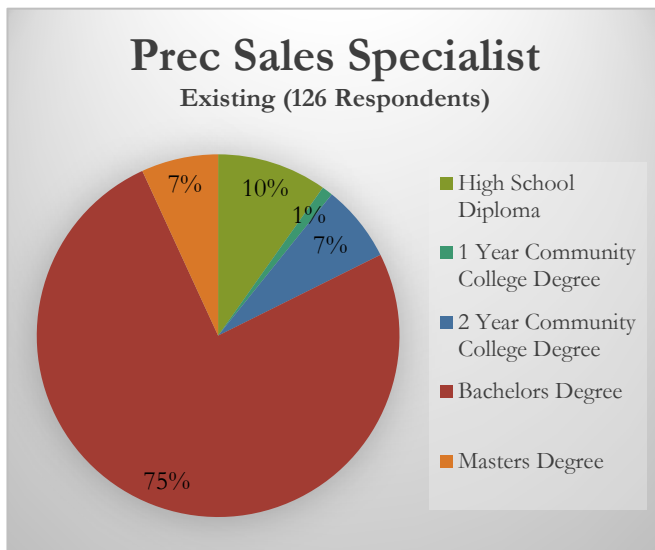


Fig 4. Existing and Future Education Requirements for Precision Technical Support.

For precision sales specialists, currently most have a bachelor's degree, and most respondents indicated that is the desired level of education in the future, although a quarter of retailers thought an associate's degree is sufficient (Figure 5).



Salaries

Annual salaries retailers expected to pay for precision employees ranged from \$35,000 to \$60,000, varying by position and education (Figure 6). For those with associate's degrees the salary range is \$40-46,000. With a bachelor's degree, the annual salary to work in precision agriculture ranges from about \$42,000 to \$52,000. There is a salary advantage for all positions for having a degree beyond a high school diploma, with the exception of a one-year degree from a community college. The greatest education advantage is for the role of agronomist, the second greatest for the Precision Sales Specialist, and the least education advantage is for an equipment operator. Going beyond a bachelor's

degree to a master's degree resulted in a substantial pay increase only for the agronomist role. The salary numbers did not include benefits such as health insurance or retirement.

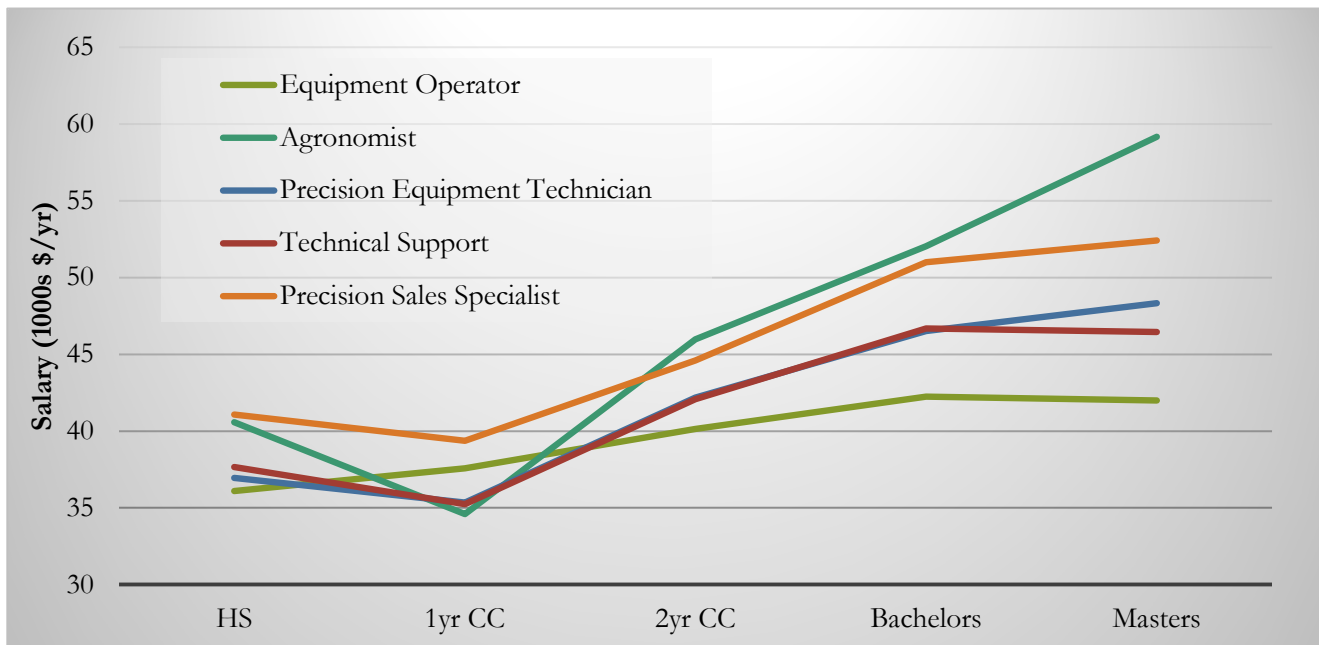


Fig 6. Annual Base Salary by Work Role and Level of Education.

Difficulty of Locating Qualified Applicants

Respondents overwhelmingly indicated at least some difficulty filling precision positions, with most respondents indicating at least 60 days to fill each of the five roles (Figure 7). A third of survey respondents indicated that it took more than 90 days to fill each of five roles, with the exception of an equipment operator.

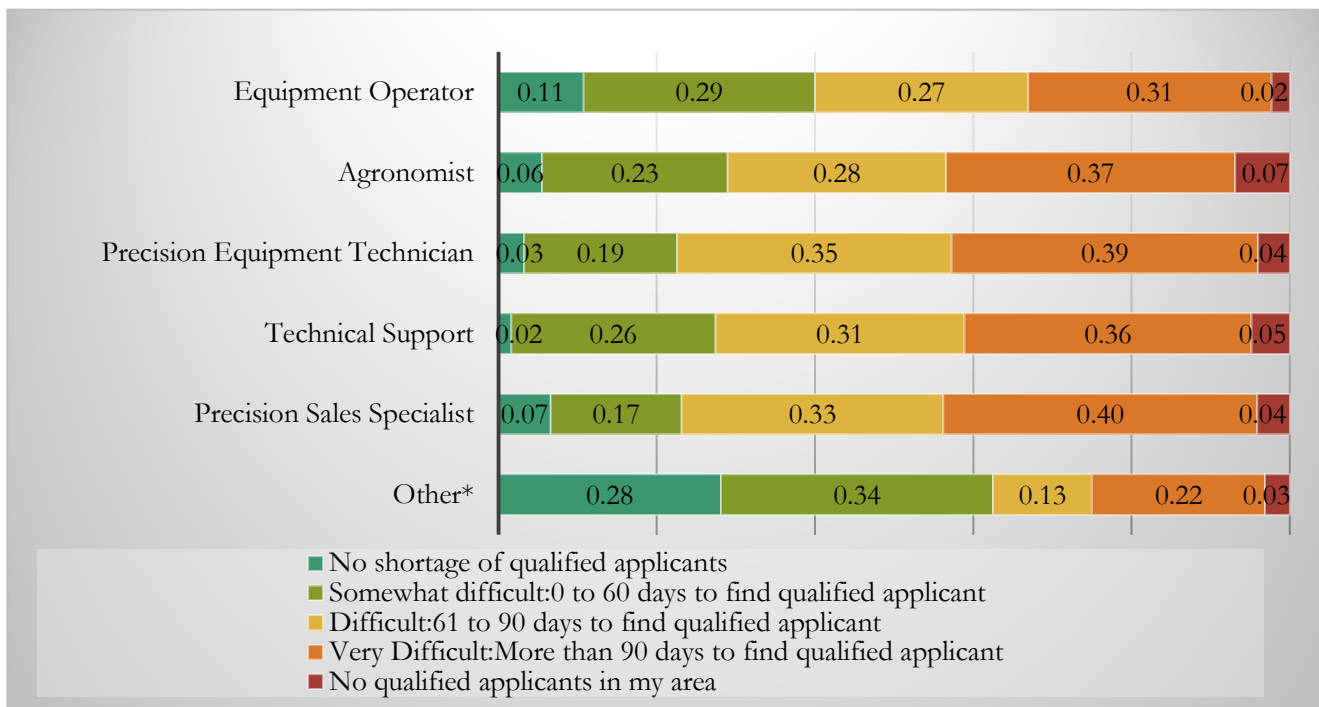


Fig 7. Difficulty of Locating Qualified Candidates.

Knowledge Level of Interviewees

As another measure of the workforce, we asked retailers to evaluate the skills of their prospective employees from their recent interviews (Figure 8). With the exception of one skill, most respondents indicated their interviewees were either low or deficient in each of the ten skills. Interviewees had the highest skill levels for their ability to operate precision agriculture equipment (monitors, controllers, etc.). Lowest skill level indicated was for their working understanding of statistical standards to produce means and standard deviations.

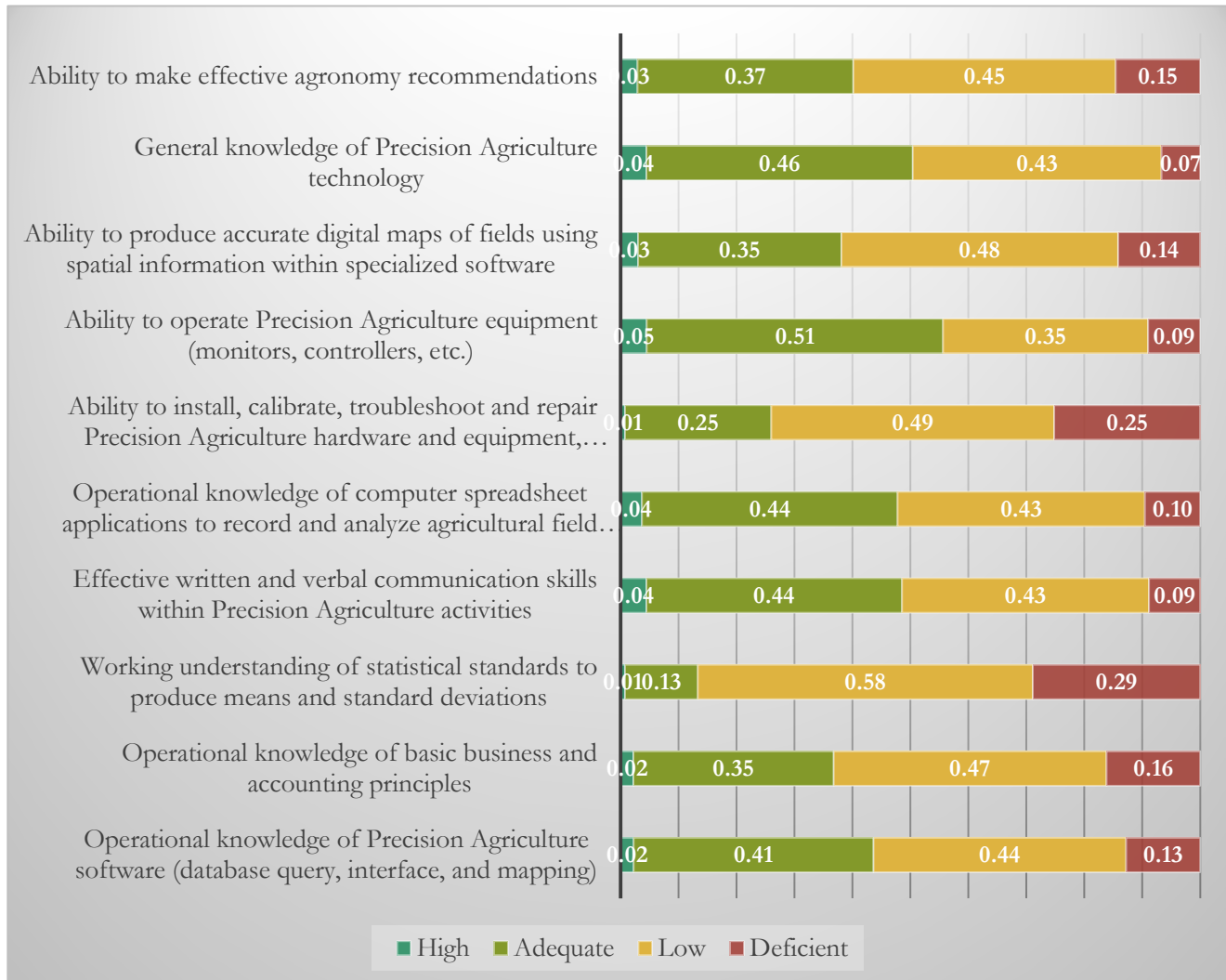


Fig 8. Knowledge Level of Interviewees.

Importance of Skills

Survey respondents evaluated a set of ten skills related to precision farming for the five work roles (Figure 9). As expected, the importance of these skills is least for an equipment operator, with the exception of being able to operate or install, calibrate and repair precision agriculture equipment. Overall, the highest rated skills amongst all positions outside of equipment operators was a general knowledge of precision agriculture technology, and abilities related to verbal and written communication. The lowest overall rating was for an ability to make effective agronomy recommendations, a skill left solely for the role of the agronomist, and the highest importance of any individual work role.

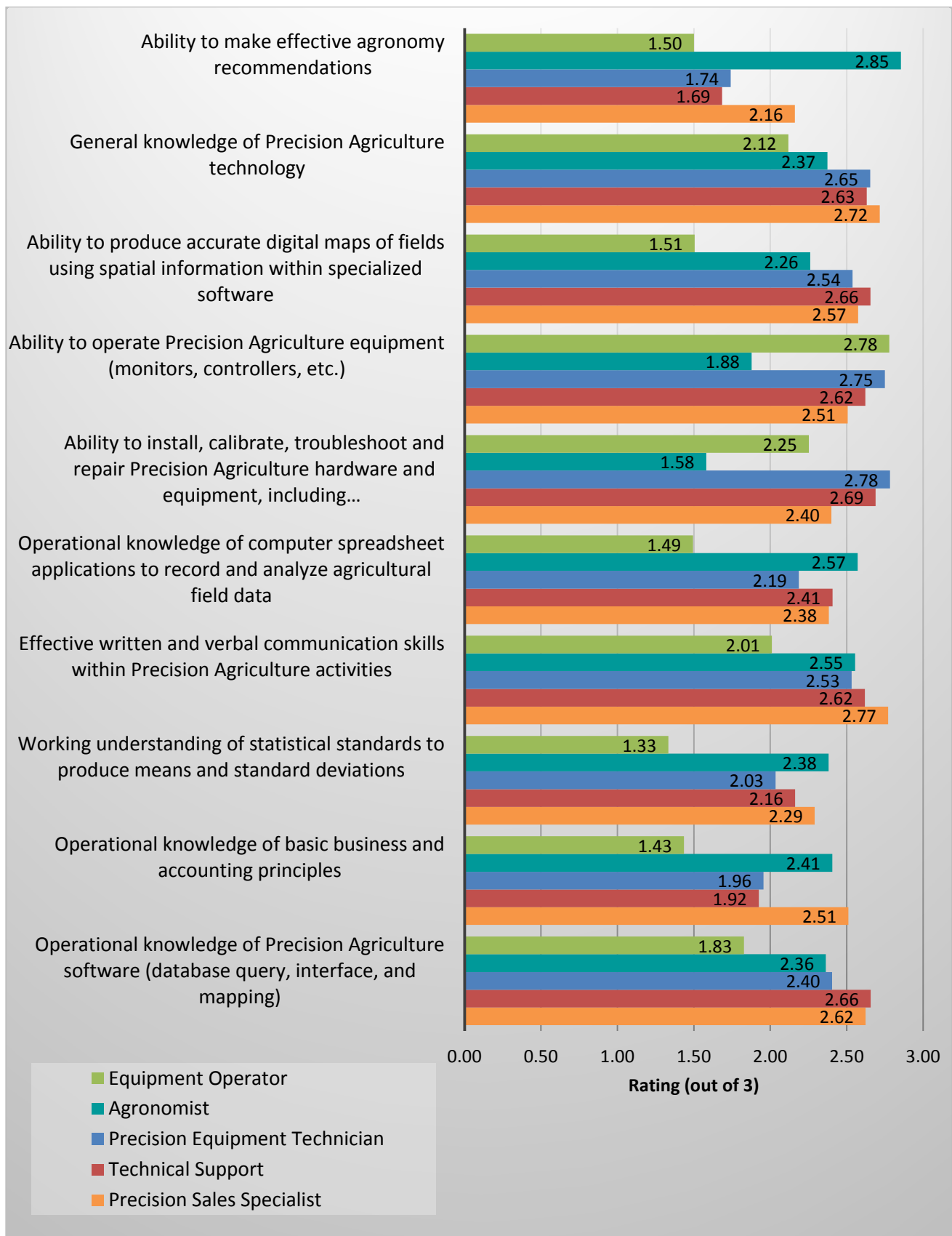


Fig 9. Importance of skills for various work roles.

Hiring Plans

Forty three percent of respondents indicated they will hire in the coming year.

Employee Turnover

Employee turnover was not a problem for most respondents. Forty nine percent of respondents indicated no turnover, and 36% had turnover but with little impact on their business. Fifteen percent indicated that turnover had a significant impact on their business.

Satisfaction with and Preference for Precision Training

Survey respondents were generally satisfied with the training they receive from companies. Sixty eight percent of respondents indicated that they received training from the companies providing precision hardware or software. For precision equipment training 15% rated it inadequate, 39% rated adequate, 38% rated good, and 5% rated it excellent. For software training 19% rated it inadequate, 41% rated adequate, 32% good, and 8% excellent.

Regarding education, 57% preferred that it be administered face to face in a classroom, 20% preferred internet, and 23% were not interested in paying for training. The ideal length of training was two days. January is the best month, followed by February, December, November, August, and July. As an average, respondents considered that \$157 was a reasonable cost for an 8 hour day of classroom training. This cost is similar to in-state tuition rates at a land grant university, and may not accurately reflect the market, as what a retailer considers a reasonable cost might be quite different than what they might actually pay. The range of responses for classroom training was \$0 to \$1000.

Summary

The survey results show that precision workers overall have a diploma or degree that meets or exceeds the expectations of their employers. But it has been hard to find qualified applicants, and the precision agriculture skills of those candidates interviewed are mostly low or deficient. Excepting equipment operators, effective written and verbal communication skills, and a general knowledge of precision technologies were the skills retailers most valued in their precision workers.

Most of the precision workforce has a bachelors (four-year) degree, with the exception of equipment operators. Most equipment operators currently have a high school diploma, and retailers indicate that this will be sufficient in the future. For agronomists and precision sales specialists, survey respondents indicated that this level of education will be the minimum in the future for these positions. And while most current equipment technicians and tech support personnel also have bachelor's degrees, retailers were split on the need for that degree, with a slightly higher percentage of respondents indicating that an associates (two-year) degree was the required educational level.

The education results from the survey suggest that one and two year post high school educational institutions may have a competitive advantage in training students for entry into certain positions in retail precision agriculture. This may be because preparation from a two-year institution could be more practical and field-applied, vs. the more theoretical approach often used by many four-year institutions. Also, with an overall lack of confidence in the skills of their hires, retailers may have decided that they or their affiliate companies will necessarily take on the responsibility of providing training of new employees--so why make the often more expensive investment in a bachelor degree holder? And with a shortage of qualified applicants for precision agriculture openings, one and two year programs can produce potential employees faster than four year institutions. So the question that seems to be posed to four year institutions is: Can bachelor degree granting institutions develop the curriculum necessary to produce the type of employee that will meet the needs of the retail industry?

In a related question regarding education, retailers expected to pay more salary for their workers that had bachelor's degrees as compared to a high school diploma or associates degrees, but a master's

degree held a premium price only for an agronomist.

Retailers indicate an acute need for precision agriculture education. One indication of this is the overall difficulty in finding qualified candidates for precision agriculture positions. For the five positions defined, most retailers overall thought finding qualified candidates was at least difficult (at least 60 days to fill a position), and with the exception of equipment operators, more than a third of respondents said filling any of the other four positions was very difficult (at least 90 days to fill a position).

Another indication of the need for precision agriculture education is the knowledge level of interviewees. We defined ten skills that should be central to those working in precision agriculture. With the exception of one skill, most respondents indicated their interviewees were either low or deficient in each of the ten skills. Interviewees had the highest skill levels for their ability to operate precision agriculture equipment (monitors, controllers, etc.). Lowest skill level indicated was for their working understanding of statistical standards to produce means and standard deviations.

The differences between the current skill sets of employees/prospective employees and the desired skills indicated by the retailers should provide the focus for future education offerings. Outside of equipment operators, retailers rated knowledge of precision agriculture technology and abilities related to verbal and written communication as most important. These two skills were among the higher-rated skills of prospective employees, although most were still low or deficient. A working understanding of statistical standards to produce means and standard deviations, as well as the ability to install, calibrate, troubleshoot and repair precision agriculture hardware and equipment were the two skills most deficient in applicants, but not among those most highly rated as important by retailers.

Retailers generally are pleased with the training they receive from companies. They greatly prefer classroom training vs. Internet-based, and they consider about \$20 per hour a reasonable cost.

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Appendix: Survey Instrument

PRECISION SKILLS SURVEY



South Dakota State University
Purdue University

**PLEASE HELP EDUCATORS BETTER PREPARE YOUR EMPLOYEES TO WORK IN
PRECISION AGRICULTURE!** Please fill out and return this brief survey.

PLEASE RETURN BY JULY 10, 2015.

Thanks again for your participation.

If you cannot provide complete answers to questions, please do provide information to the best of your knowledge and resources.

If you run into any difficulties please contact Scott or Bruce at the email addresses provided in the email.

1. Zip code of your business location: _____.
2. Total number of employees at this location: _____.
3. Employees working directly with precision ag at this location: Full time _____. Part time _____.
4. List the number of each employee roles at your location in the Total column, full-time and part-time. Then, indicate the number holding each of the diplomas/degrees listed.

	Total Number	High School Diploma	1-Year Community College Degree	2-Year Community College Degree	Bachelors Degree	Masters Degree
	<i>Sum of each row should equal left column</i>					
<u>Equipment Operator</u> Runs the equipment that applies pesticides and fertilizers to farmer's fields	_____	_____	_____	_____	_____	_____
<u>Agronomist</u> Provides recommendations on crop and soil management to farmers	_____	_____	_____	_____	_____	_____
<u>Precision Equipment Technician</u> Installs new precision equipment on implements; troubleshoots and repairs precision equipment ON SITE	_____	_____	_____	_____	_____	_____
<u>Technical Support</u> Works REMOTELY with farmer customers to troubleshoot precision equipment and software	_____	_____	_____	_____	_____	_____
<u>Precision Sales Specialist</u> Works specifically with precision equipment sales and support	_____	_____	_____	_____	_____	_____
<u>Other</u> (list) _____	_____	_____	_____	_____	_____	_____

5. In five years, what will be the required educational level for employment for each of the employee types? Leave blank any option that does not apply to your business. *Place only one checkmark in each row.*

	High School Diploma	1-Year Community College Degree	2-Year Community College Degree	Bachelors Degree	Masters Degree
<i>Check one box per row</i>					
<u>Equipment Operator</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>Agronomist</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>Precision Equipment Technician</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>Technical Support</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>Precision Sales Specialist</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>Other (list)</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

6. What salary do you expect to pay a new employee for the positions and levels of education listed? *Leave blank any option that does not apply to your business.*

	High School Diploma	1-Year Community College Degree	2-Year Community College Degree	Bachelors Degree	Masters Degree
<i>Base salary, \$/year, not including benefits(i.e., for \$36,000 write 36k)</i>					
<u>Equipment Operator</u>	_____	_____	_____	_____	_____
<u>Agronomist</u>	_____	_____	_____	_____	_____
<u>Precision Equipment Technician</u>	_____	_____	_____	_____	_____
<u>Technical Support</u>	_____	_____	_____	_____	_____
<u>Precision Sales Specialist</u>	_____	_____	_____	_____	_____
<u>Other (list)</u>	_____	_____	_____	_____	_____

7. Please indicate the level of difficulty finding qualified applicants in the precision ag employee types listed below. Place only one checkmark in each row.

	No shortage of qualified applicants	Somewhat difficult: 30 to 60 days to find qualified applicant	Difficult: 60 to 90 days to find qualified applicant	Very Difficult: More than 90 days to find qualified applicant	No qualified applicants in my area
<i>Check one box per row</i>					
<u>Equipment Operator</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>Agronomist</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>Precision Equipment Technician</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>Technical Support</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>Precision Sales Specialist</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>Other (list)</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

8. Rate the level of knowledge of individuals that you have interviewed for precision positions in the last two

years. Place one checkmark per row.

	Deficient	Low	Adequate	High
	<i>Check one box per row</i>			
Ability to make effective agronomy recommendations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
General knowledge of Precision Agriculture technology	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ability to produce accurate digital maps of fields using spatial information within specialized software	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ability to operate Precision Agriculture equipment (monitors, controllers, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ability to install, calibrate, troubleshoot and repair Precision Agriculture hardware and equipment, including electrical/mechanical/hydraulic/software systems	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Operational knowledge of computer spreadsheet applications to record and analyze agricultural field data	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Effective written and verbal communication skills within Precision Agriculture activities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Working understanding of statistical standards to produce means and standard deviations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Operational knowledge of basic business and accounting principles	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Operational knowledge of Precision Agriculture software (database query, interface, and mapping)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

9. When screening potential new employees to fill an opening on your precision ag team in the areas listed, how important are the following skill and knowledge areas? Please rank each knowledge area from 1 to 3. With 1 being the most important and 3 being the least important. Please provide a rank in each box.

	Equipment Operator	Agronomist	Precision Equipment Technician	Technical Support	Precision Sales Specialist
	<i>1=most important, 3=least important</i>				
Ability to make effective agronomy recommendations	___	___	___	___	___
General knowledge of Precision Agriculture technology	___	___	___	___	___
Ability to produce accurate digital maps of fields using spatial information within specialized software	___	___	___	___	___
Ability to operate Precision Agriculture equipment (monitors, controllers, etc.)	___	___	___	___	___
Ability to install, calibrate, troubleshoot and repair Precision Agriculture hardware and equipment, including electrical/mechanical/hydraulic/software systems	___	___	___	___	___
Operational knowledge of computer spreadsheet applications to record and analyze agricultural field data	___	___	___	___	___
Effective written and verbal communication skills within Precision Agriculture activities	___	___	___	___	___
Working understanding of statistical standards to produce means and standard deviations	___	___	___	___	___
Operational knowledge of basic business and accounting principles	___	___	___	___	___
Operational knowledge of Precision Agriculture software (database query, interface, and mapping)	___	___	___	___	___

10. Do you plan to hire a precision ag employee(s) in the next year? Yes___ No___

11. How has precision ag employee turnover impacted your business in the last two years?

- no turnover
- turnover but with little impact on my business operations.
- turnover with significant impact on my business operations.

12. Does your dealership receive precision ag training from the manufacturers you purchase precision ag equipment and/or software? Yes___ No___

If Yes, please answer the question below:

13. I consider the quality of the precision ag training provided by the manufacturer to be

	Incomplete	Adequate	Good	Excellent
Software training	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Equipment training	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

14. Which method would you prefer to have your employees participate in a fee based training program?

- Classroom setting
- Internet setting
- Not interested in fee based training

15. If a classroom option were available, how many days should the training program be scheduled to minimize interruption to your business?

_____ days

16. Which month of the year is best for classroom training to be scheduled?

_____month

17. What do you believe would be a reasonable per day cost (8 hours) of a classroom based training program?

_____\$/day

18. What do you believe would be a reasonable cost of an internet-based training program?

\$_____