



**CERTIFIED
CROP ADVISER**

2020 CERTIFICANT SURVEY

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ABOUT THIS RESEARCH

ABOUT THIS STUDY

This internet survey of emailable Certified Crop Advisors (CCA) was conducted by the American Society of Agronomy (ASA) to learn certificate holders' satisfaction with and suggestions for the certification and its associated benefits.

The survey was designed by ASA staff, building on similar efforts undertaken in 2005 and 2013. The invitation to participate was emailed to 11,117 emailable CCA Certificate holders. Data was collected via Survey Monkey between March 10 and April 1, 2020.

A total of 2,181 sample members responded (19.6% response rate). Because a significant fraction of those invited to participate chose not to do so, the possible effects of non-response bias on these results should be considered. Percentages based on all 2,181 responses are subject to a margin of error of $\pm 2.0\%$ at the 95% confidence level.

ABOUT THIS REPORT

This initial Findings section provides a narrative summary of key survey results, with selected comparisons between important segments of the population of interest. Where comparable, Findings from the 2005 and 2013 surveys are also discussed. The section ends with a recap of conclusions and recommendations.

Abbreviations used in this report:

- CCA: Certified Crop Adviser
- CEU(s): Continuing Education Credits
- ASA: American Society of Agronomy
- UAV: Unmanned Aerial Vehicle

DATA COLLECTION

The survey instrument was designed by ASA, building on similar surveys conducted in 2005 and 2013. Development of the survey and broadcast email contacts of sample members were handled by ASA.

On March 10, 2020, ASA broadcast initial email requests to all 11,106 members, inviting them to participate in the survey via Survey Monkey. 18 of the email addresses (0.16% of the total) bounced back undeliverable.

On March 17, 2020 reminder emails were sent to all 11,125 members. On March 23, 2020 a final reminder email was sent to 11,123 members extending the deadline due to the COVID-19 situation.

The survey was closed for tabulation on April 2, 2020, with a total of 2,181 responses – a 19.6% response rate. Because a significant fraction of those invited to participate chose not to do so, the possible effects of nonresponse bias on these results should be considered. Percentages based on all 2,181 responses are subject to a margin of error of $\pm 2.0\%$ at the 95% confidence level.

The response was tabulated and reported by ASA in accordance with accepted research standards and practice.

FINDINGS

FINDINGS: CERTIFICANT CHARACTERISTICS

EXHIBIT 1: GENDER, AGE, MEMBER STATUS

This survey represents the 11,117 Certified Crop Advisers. 85% of certificate holders are male, and 14% female (1% did not answer this question). This ratio has increased since 2013 when 92% of certificate holders were male and 7% female.

Median age for certificate holders is 48, with 10% being 65 years of age or older, and 2% under the age of 25. The median age has decreased from 50 years old in 2013.

The 2020 survey showed that 50% of certificate holders are members of the American Society of Agronomy, the Crop Science Society of America, and the Soil Science Society of America. However, when compared with the member database via email metrics, the percentage of members is much more likely 11%. This reflects the confusion between being a CCA certificate holder and a member of ASA, CSSA, or SSSA.

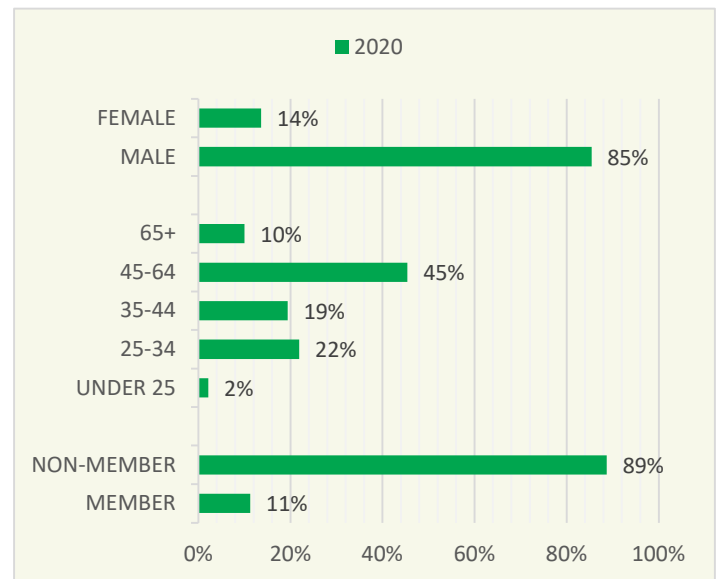
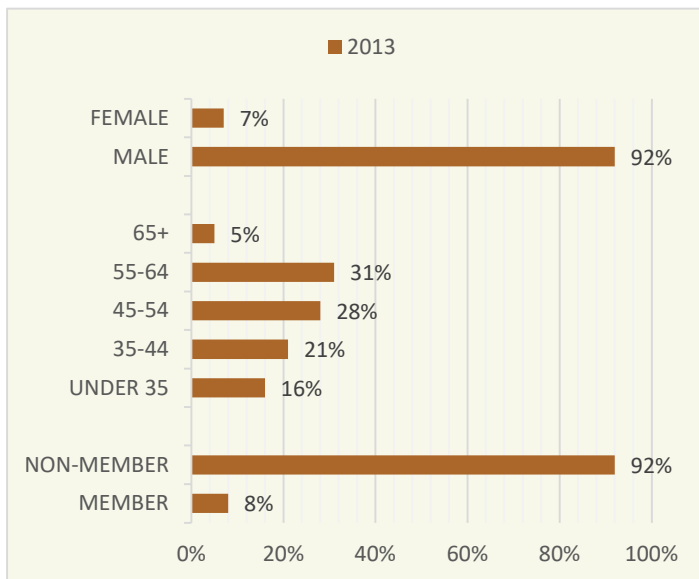


EXHIBIT 2: HIGHEST EDUCATION LEVEL

Just over half (56%) of certificate holders have a bachelor's as their highest degree earned. 18% have a master's, and 3% have a doctorate. 10% have a high school diploma or equivalent, and 13% have an associate's degree.

By age, those under 35 are significantly less likely to have a high school diploma as their highest degree. Members over 35 are significantly less likely to have a bachelor's degree as their highest degree.

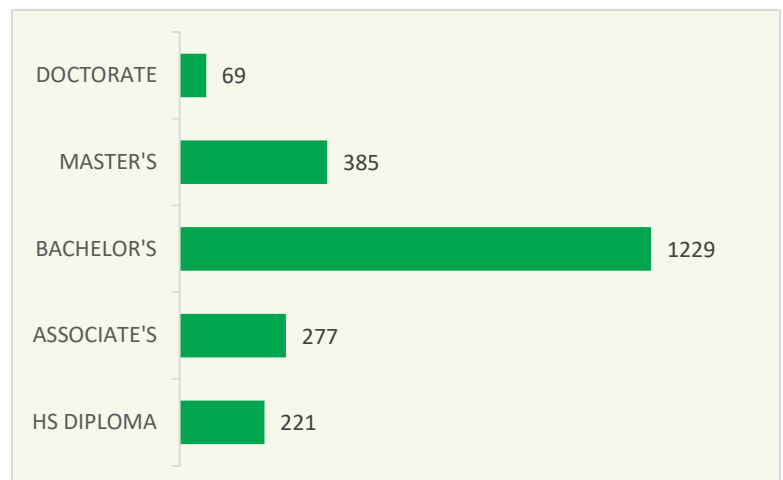


EXHIBIT 3: EMPLOYMENT

Certificate holders work primarily as salespeople or agronomists at retail or cooperative outlets (38%), as seed/chemical/fertilizer company employees (25%), and as self-employed/independent crop consultant/ agronomists (22%). No other type of employment was mentioned by more than 6% of certificate holders.

There were no significant changes in job role from 2013 to 2020.

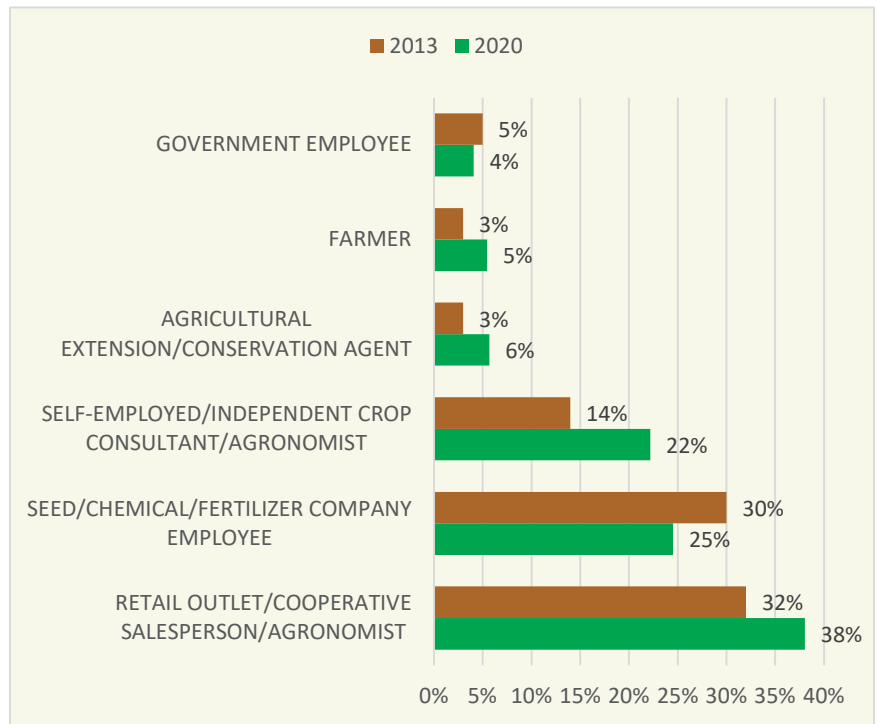


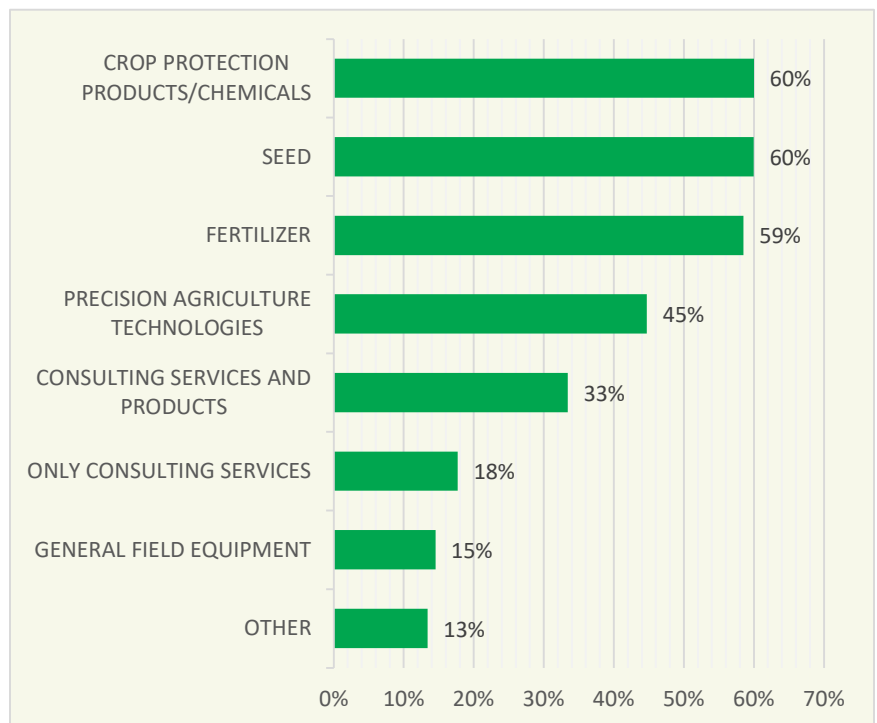
EXHIBIT 4: PRODUCTS AND CONSULTING SERVICES

Crop protection products/chemicals and seed are offered by 60% of certificant with fertilizer offered by 59%.

Precision agriculture technologies are offered by 45% and consulting services and products by 33% of certifiants.

18% of certifiants offer only consulting services to their clients. Just 15% offer general field equipment.

13% offer other products and services, including conservation practices/planning, soil health testing/management, and nutrient management.



FINDINGS: EMPLOYMENT

EXHIBIT 5: EMPLOYER 4R CERTIFICATION

For certification holders that work in a retail outlet or cooperative, 16% of their employers are 4R Certified, 19% are not, and 14% are unsure.

51% of survey takers do not work for an employer that can be 4R Certified.

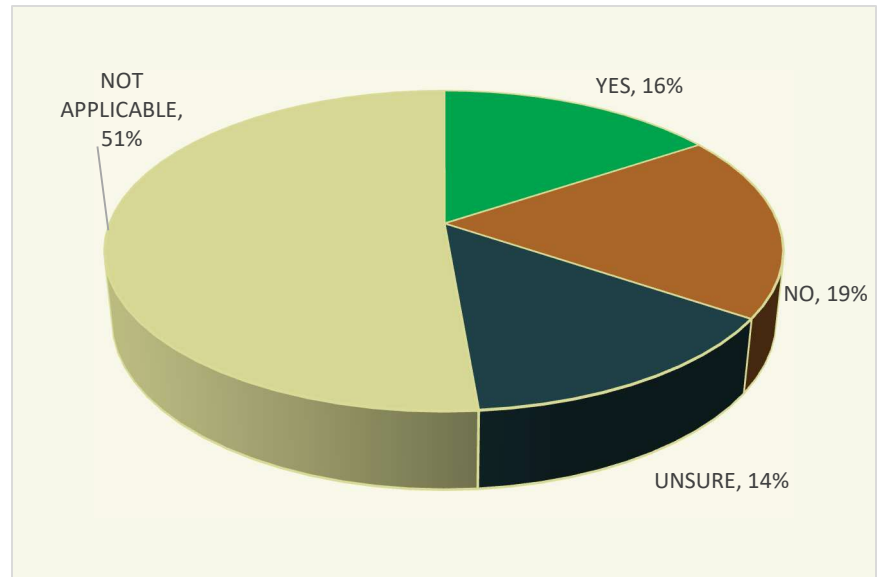
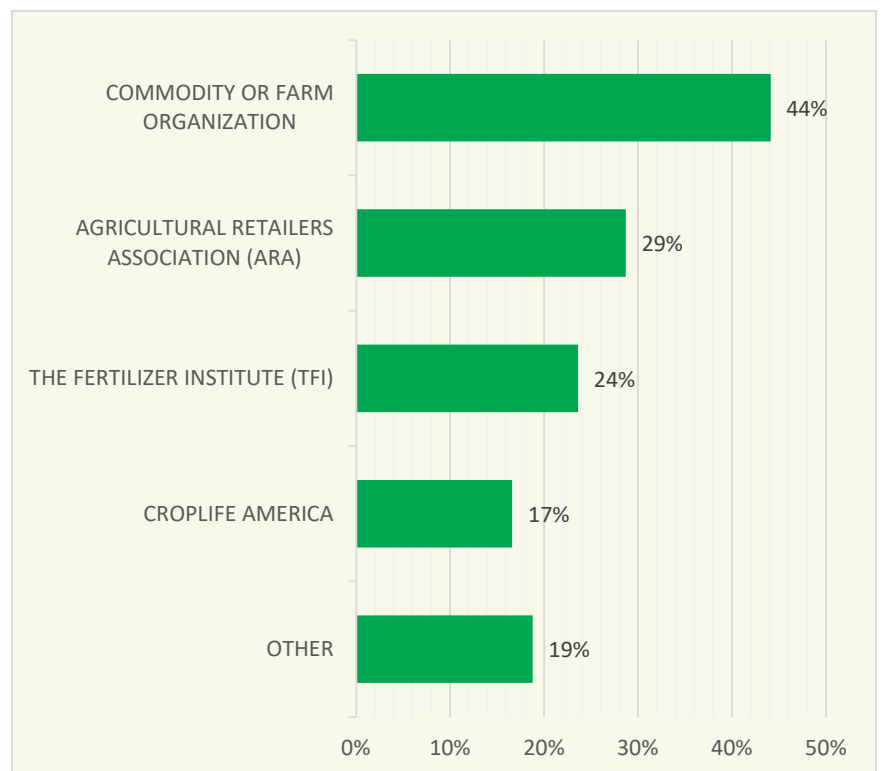


EXHIBIT 6: PROFESSIONAL ORGANIZATIONS

Certification holders were asked which organizations they or their employer belong to and almost half (44%) indicated a commodity or farm organization. 29% are members with the Agricultural Retailers Association (ARA), 24% with the Fertilizer Institute (TFI), and 17% with CropLife America.

19% indicated they were members with other organizations, with the most popular options including the California Association of Pest Control Advisers (CAPCA), Alberta Institute of Agrologists (AIA), and Canadian Association of Agri-Retailers (CAAR).

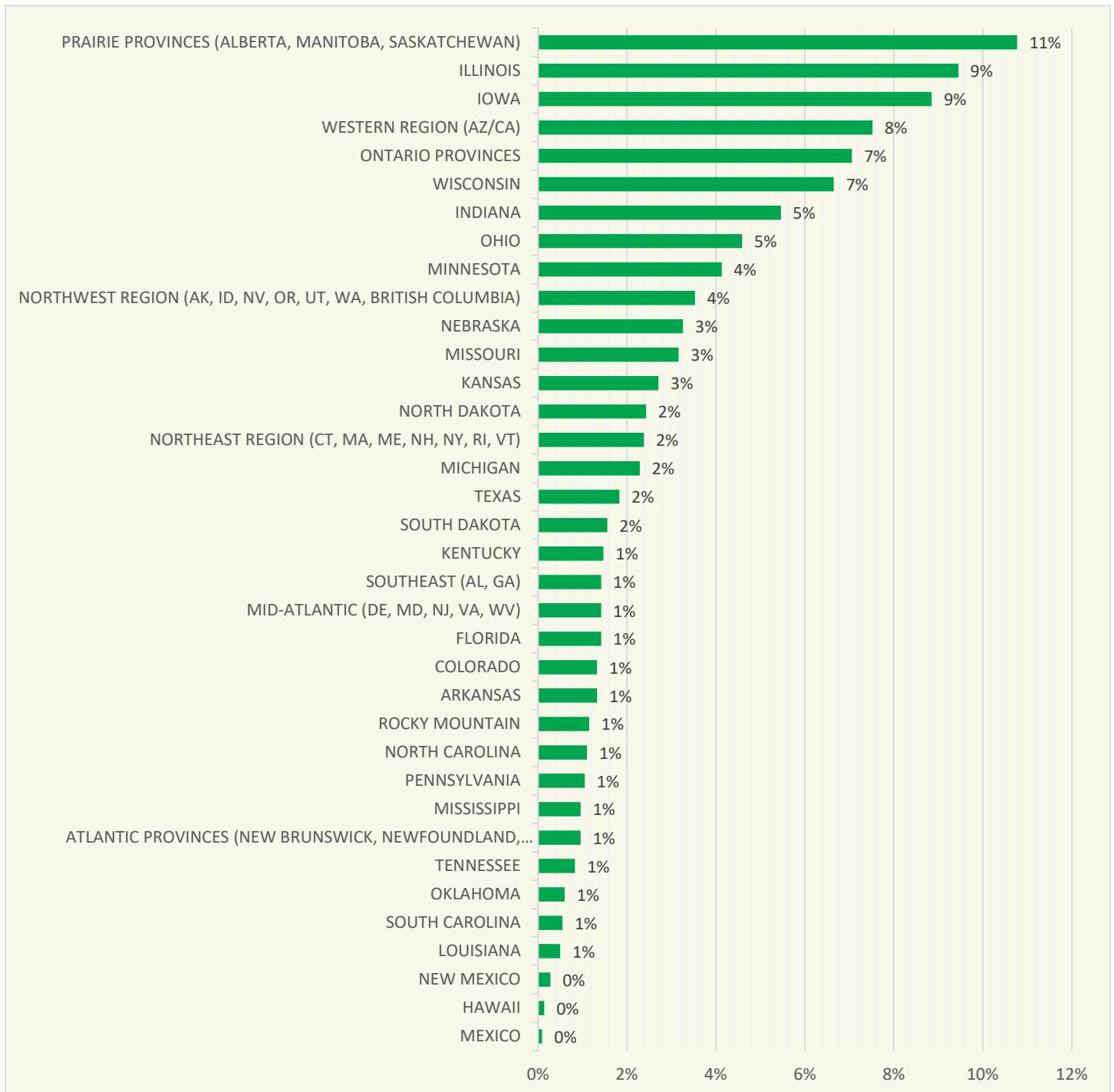


FINDINGS: CCA CERTIFICATION

Certificate holders hold their primary certification from the states and provinces listed below. Over half (55%) of respondents hold their primary certification in a state within the Midwest Census designation. The next most popular regions for certificate holders are Canada (19%) and the Southeast (10%).

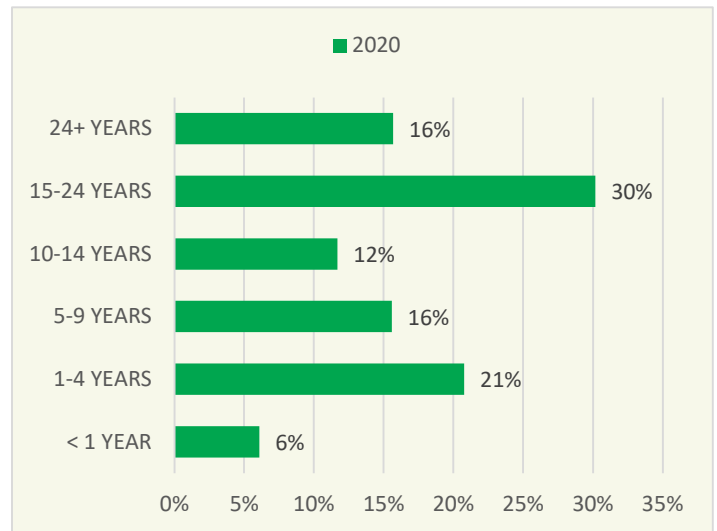
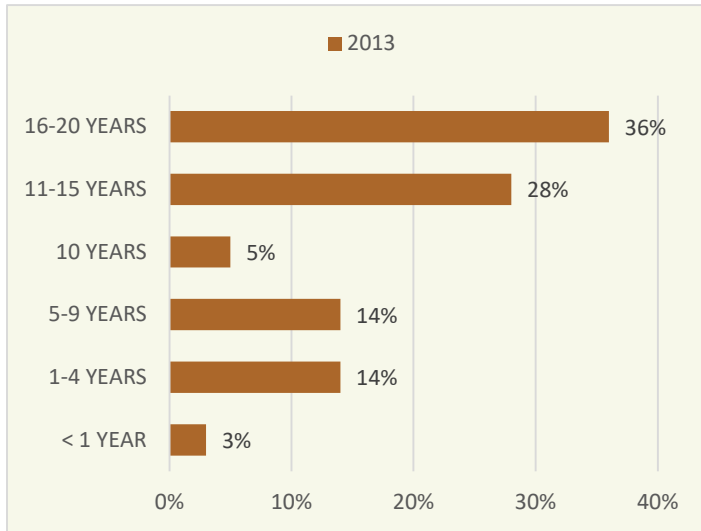
The numbers from 2013 have increased slightly for the Midwest (from 47%) and Canada (from 12%).

EXHIBIT 7: LOCAL CCA BOARD CERTIFICATION



Although the categories for tenure changed slightly from the 2013 survey, there is a clear surge of incoming certificate holders. Almost one third (30%) of respondents have held their CCA certification for 15-20 years and almost half for more than 15 years (46%).

Respondents who have held their CCA certification for less than one year increased from 3% to 6%, 1-4 years increased from 14% to 21%, and 5-9 years increased from 14% to 16%. The average tenure is 12.6 years and the median is 13.2 years. These are almost identical to the 2013 metrics of 12.2 and 13 years.

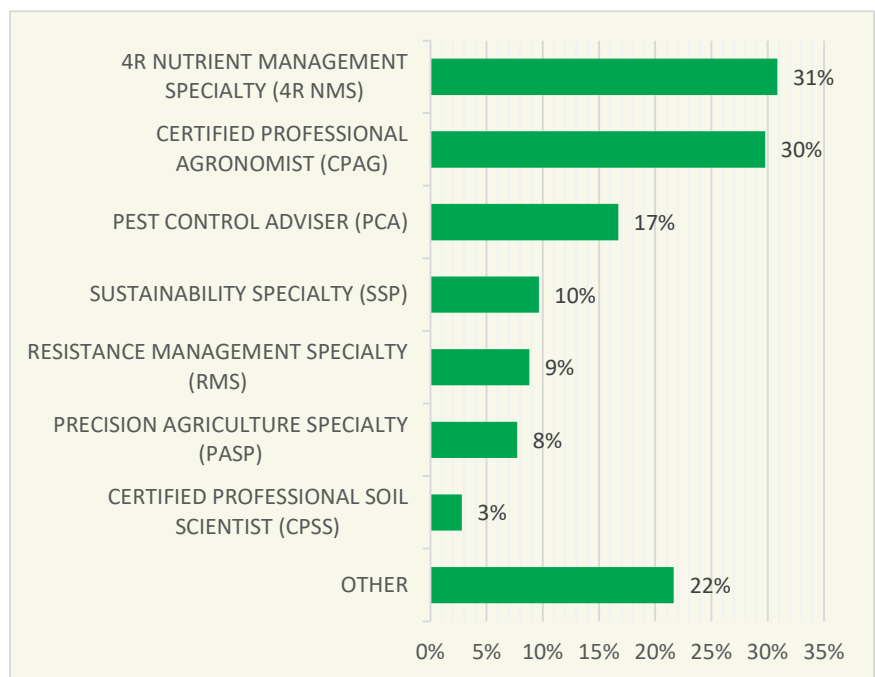


22% of certificants indicated that they do have more than a general CCA certification, and 78% do not.

Of those that do have another certification, 31% have 4R NMS and 30% have a CPAG certification.

Fewer certificate holders also hold a PCA (17%), SSP (10%), RMS (9%), PASP (8%), or CPSS (3%).

Almost a quarter (22%) of respondents have a certification that was not listed, including Nitrogen Management, Professional Agrologist, and Technical Service Provider.



FINDINGS: CLIENT BASE

EXHIBIT 10: NUMBER OF CLIENTS SERVICED

Most (80%) certificate holders have either less than 40 or more than 70 clients.

The categories of 70+ clients and 10-25 clients are tied with 22% of respondents choosing those options.

Less than 10 clients and 26-40 are also tied with 18% of respondents choosing those options.

11% have 41-55 clients and only 8% have 56-70 clients.

Certificate holders aged 35-64 are significantly more likely to have 70+ clients.

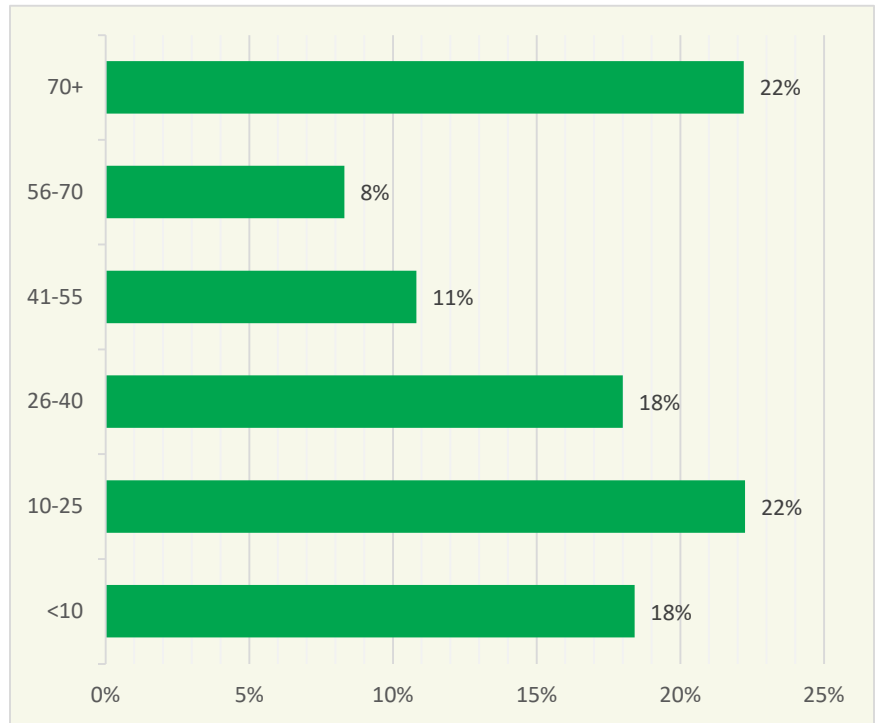


EXHIBIT 11: ACRES OF FARMLAND SERVICED

When asked how many acres of farmland they provide consulting services to, 28% of respondents indicated that they service 40,000+ acres. The next highest categories were 20,000-40,000 acres with 23% of respondents and 10,000-19,999 acres with 20%.

10% service 5,000-9,999 acres, 10% services less than 1000 acres, and 9% service 1,000-4,999 acres.

Overall, 71% of respondents provide consulting services to 10,000 or more acres.

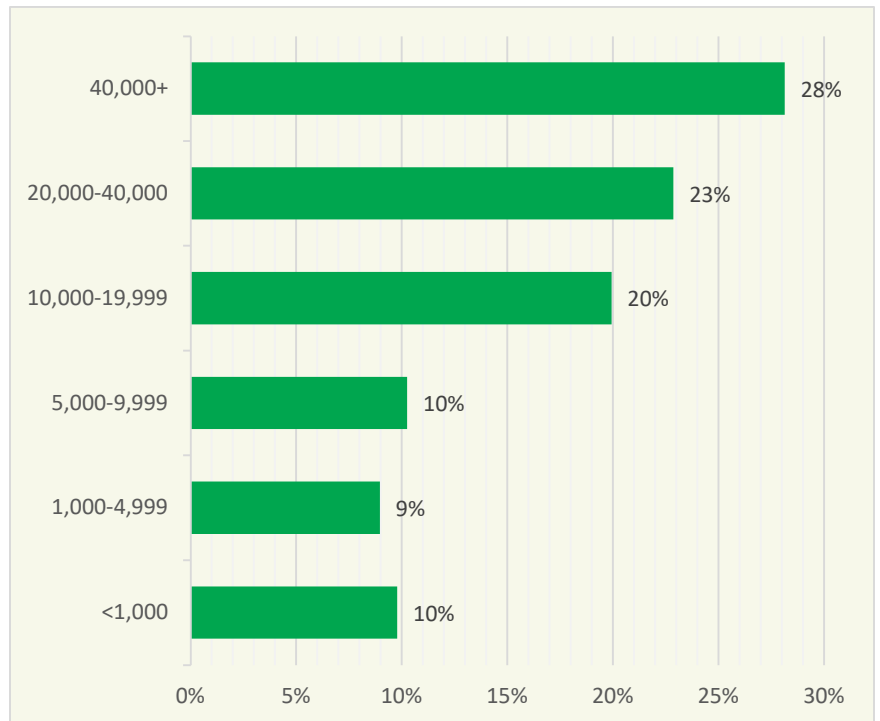


EXHIBIT 10: CLIENTS CATEGORIZED

On average, 50% of clients are customers to whom CCAs provide some services, but the clients also work with other agronomists.

On average, 47% of clients are dedicated clients for whom the respondent is the sole agronomist that they have hired.

On average, 19% of clients are prospect who agronomists routinely communicate with to earn their business.

Results are averaged based on individual responses and do not sum to 100%.

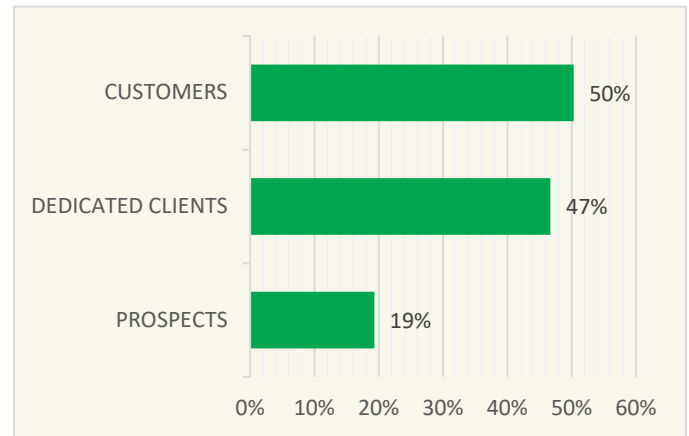


EXHIBIT 11: CLIENT PAYMENTS

56% of clients pay for consulting services indirectly, where the clients purchase inputs from the agronomist and the consulting services are part of a larger package.

21% of clients pay directly, where they are invoiced by the CCA. 11% of clients do not pay for consulting services because the agronomist works for the government, a university, or non-governmental organization (NGO).

5% of clients pay à la carte, where they choose a level of service. 7% of agronomists indicated their clients pay using a different method, with most of those being combination of indirect and direct pay.

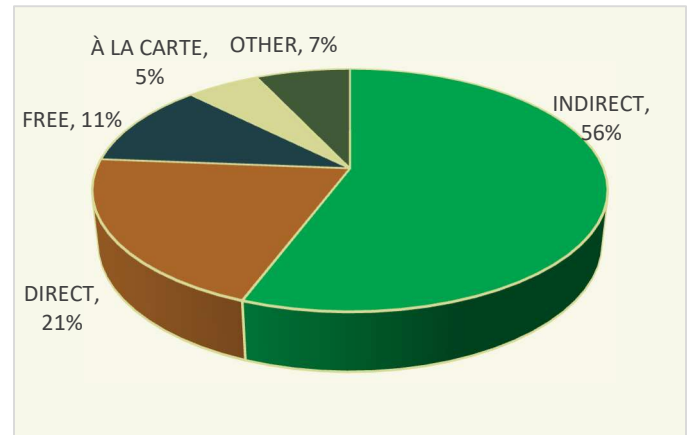


EXHIBIT 12: INVOICING METHODS

For agronomists who charge for their services, 37% charge per acre. 8% charge per acre, 6% per farm, and 2% per field.

46% of respondents selected other and indicated that they do not charge for their consulting services, use a combination of the invoicing methods listed, or charge clients only for products purchased.

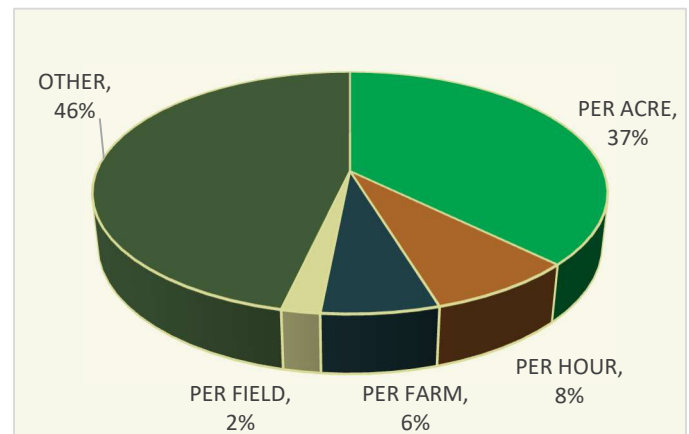


EXHIBIT 13: CERTIFICATION FEE PAID BY

For a majority (63%) of certificate holders the annual CCA certification fee is paid for by their employer. 34% pay the certification fee themselves, a slight increase from 2013.

3% of certificate holders split the cost with their company. 1% paid by other means which includes some who are self-employed or reimbursed by the government.

Certificate holders older than 64 are significantly more likely to pay all their certification fee.

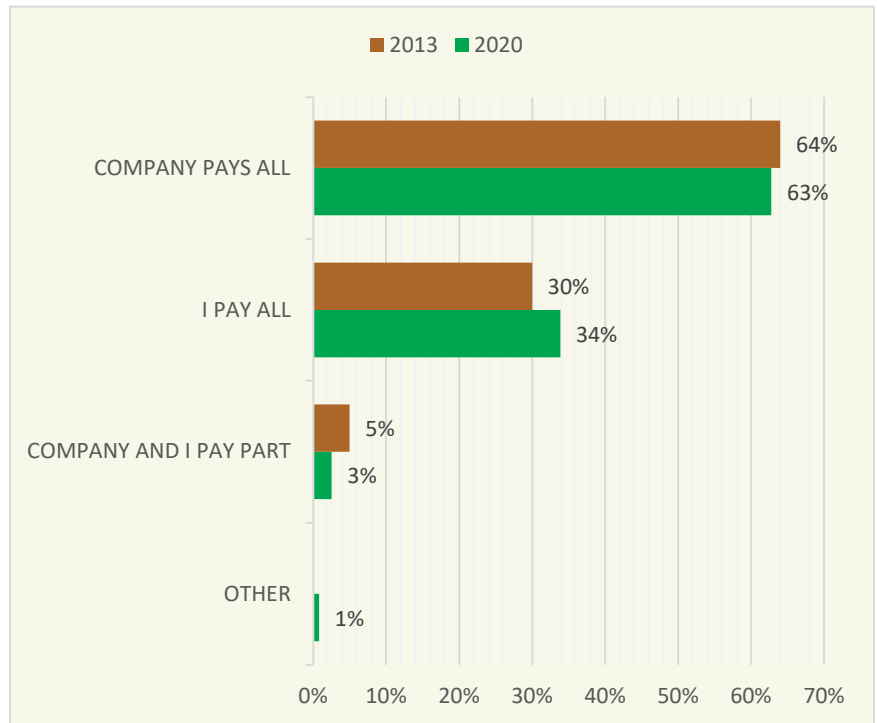


EXHIBIT 14: FIRST LEARNED ABOUT CCA PROGRAM

Most certificate holders report first learning about the Certified Crop Adviser (CCA) program from their employer (47%) or college/university (23%).

13% learned of the program through a CCA colleague, 8% from the American Society of Agronomy, and 8% from a tradeshow, conference, or meeting.

Certificate holders 34 years old and younger were significantly more likely to learn about the CCA program via college/university whereas members 45 and older were more likely to learn about the program through a colleague, ASA, or a tradeshow.

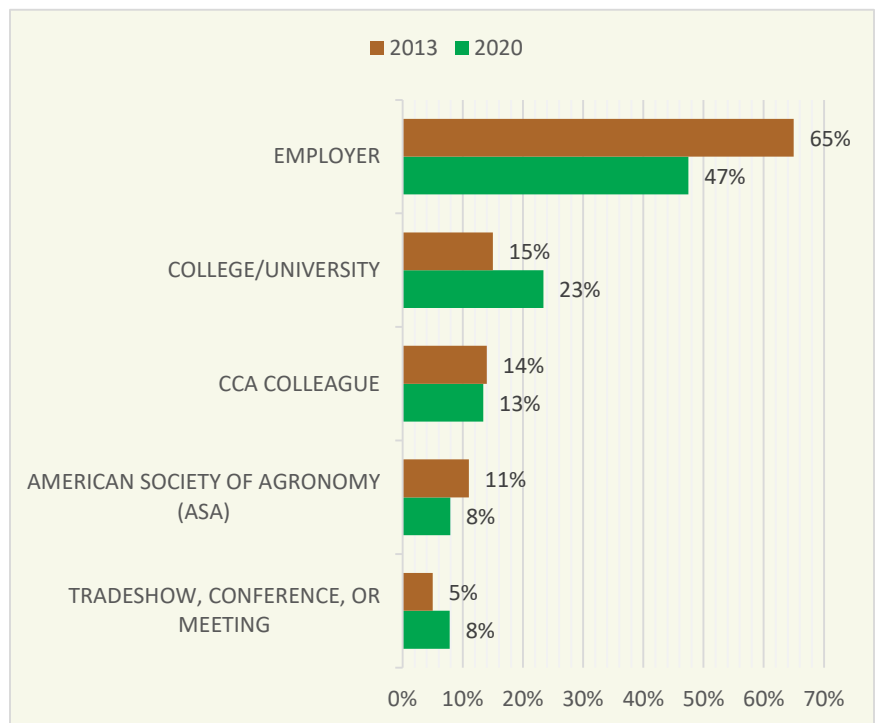


EXHIBIT 15: REASON INITIALLY OBTAINED CCA CERTIFICATION

The reasons that certificate holders have initially earned and maintained their CCA certification have stayed consistent from 2013 to 2020.

The topmost chosen reasons for initially earning the certification are that it conveys professionalism (80%), provides personal satisfaction (62%), and increases employability and income potential (52%). These were the same top three answers from 2013.

Certificate holders over age 45 were significantly more likely to obtain their CCA to support ethics-based standards or meet regulatory requirements rather than to increase employability.

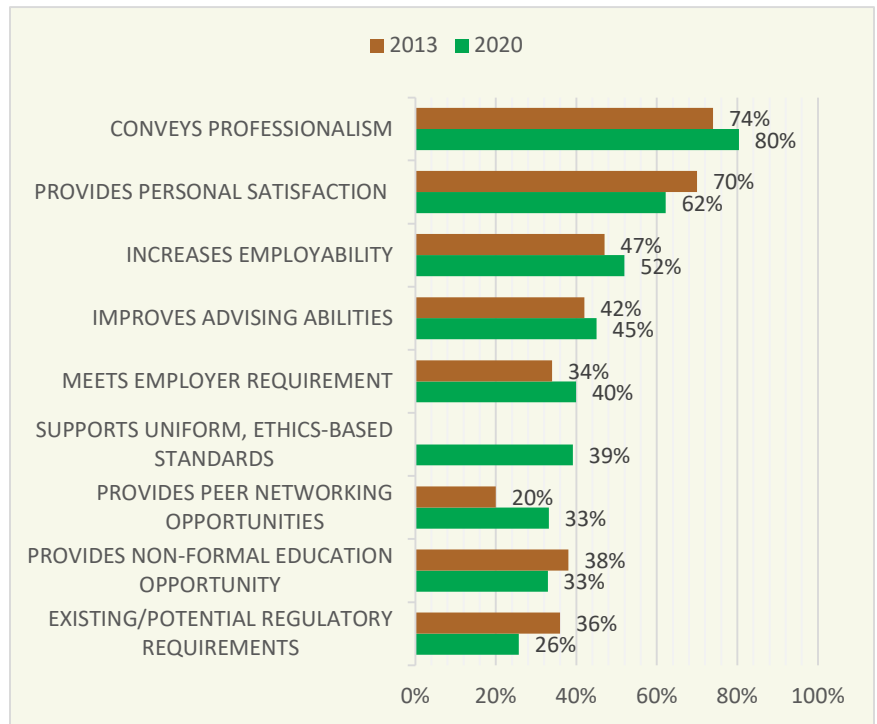


EXHIBIT 16: REASON TO MAINTAIN CCA CERTIFICATION

The reasons given for maintaining the certification include that it conveys professionalism (83%), provides personal satisfaction (62%) and improves advising abilities (48%).

These are slightly different from the top answers in 2013 which were conveys professionalism (74%), CEU opportunities (56%), and knowledge outside of formal education (53%).

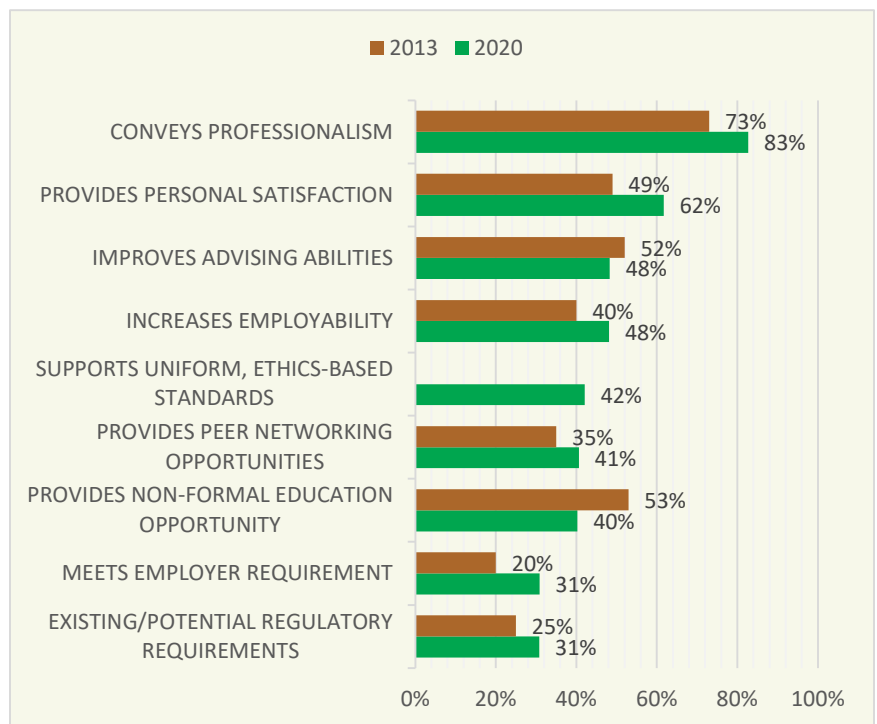


EXHIBIT 17: CCA PROGRAM RESOURCES UTILIZED

Most of certificate holders (87%) have engaged with online and print CCA program resources. This is down from 98% in 2013.

The biggest difference between 2013 and 2020 was the participation in Crops & Soils Print articles and quizzes, which decreased from 88% to 62%.

Webinars were not offered in 2013, but more than half of certificate holders participate in recorded (56%) and live (50%) webinars in 2020.

There was increased participation in the online event calendar (+6%), online professional certification directory (+4%) and local/international CCA Board position (+2%).

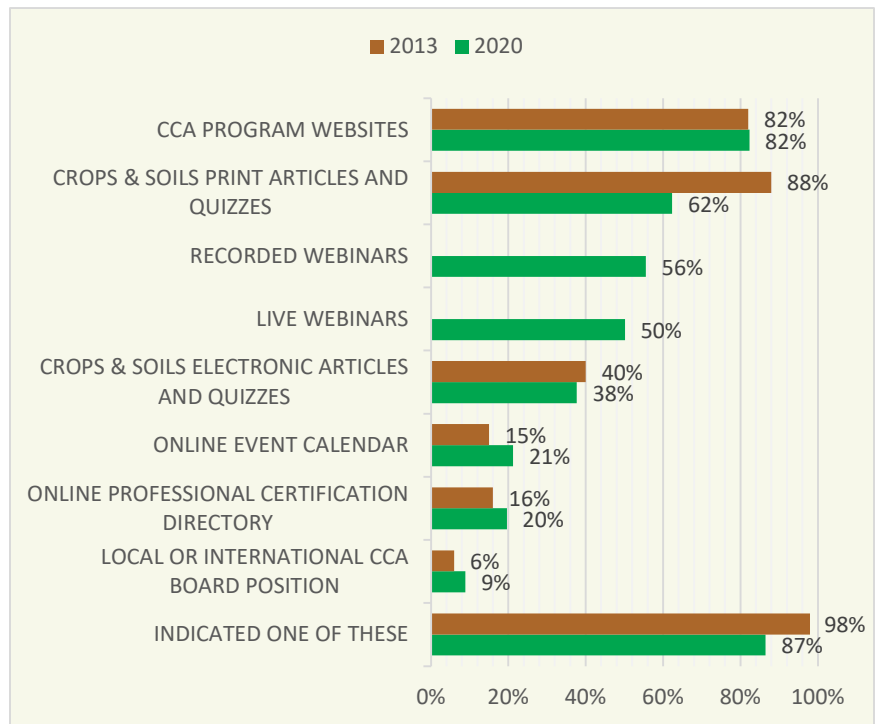


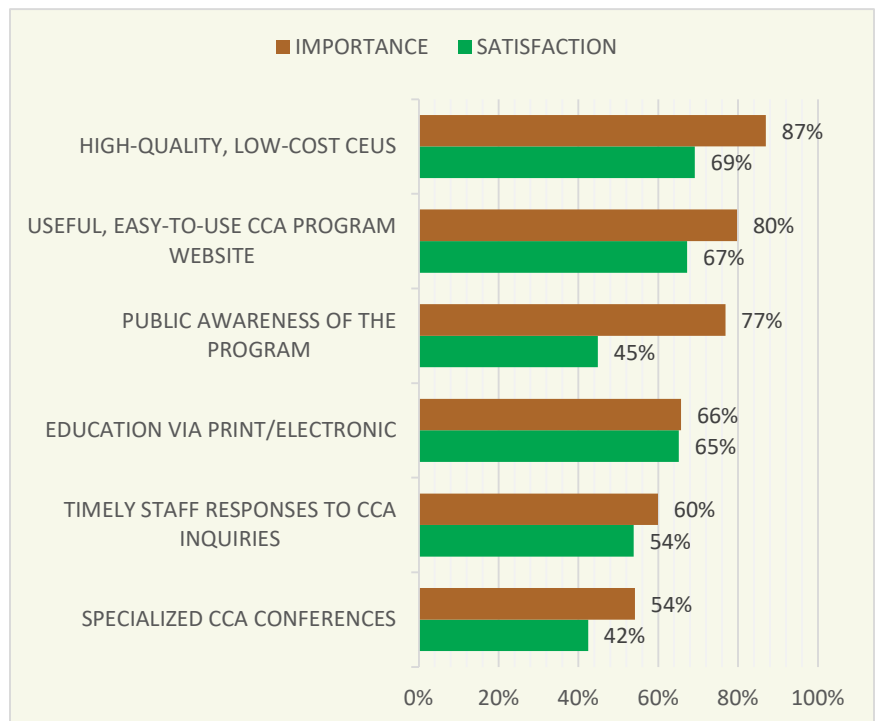
EXHIBIT 18: IMPORTANCE AND SATISFACTION WITH CCA ACTIVITIES

Certificants were asked the importance of, and their satisfaction with, 6 CCA Program activities. They rated these activities on a scale of 1 (not important/not satisfied) to 5 (important/satisfied). This chart shows the percentage of respondents who selected 4 or 5.

High-quality, low-cost CEUs are the most important activity (87%) and has the highest satisfaction rating (69%).

The largest discrepancy between importance and satisfaction is public awareness of the program - 77% indicated it was important, but only 45% are satisfied.

Certificants over 64 years old were significantly more likely to be satisfied with the high-quality, low-cost CEUs. Certificants less than 25 years old were significantly more likely to be dissatisfied with timely staff responses to CCA inquiries.



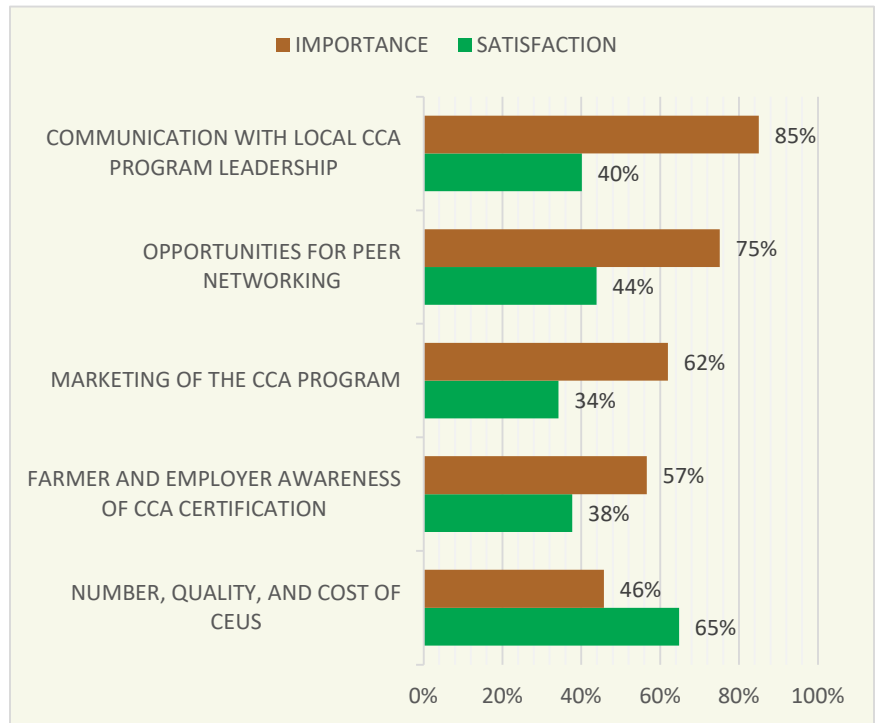
FINDINGS: STATE/PROVINCIAL/REGIONAL ACTIVITIES

EXHIBIT 19: IMPORTANCE AND SATISFACTION WITH STATE/PROVINCIAL/REGIONAL ACTIVITIES

Certificants were asked the importance of, and their satisfaction with, 5 state/provincial/ regional activities. They rated these activities on a scale of 1 (not important/not satisfied) to 5 (important/satisfied). This chart shows the percentage of respondents who selected 4 or 5.

The differences between importance and satisfaction were greatest for communication with local CCA program leadership (85% rated important, 40% rated satisfied) and opportunities for peer networking (75% rated important, 44% rated satisfied).

The number, quality, and cost of CEUs was the only category where more respondents were satisfied (65%) than how important they noted the topic (46%).

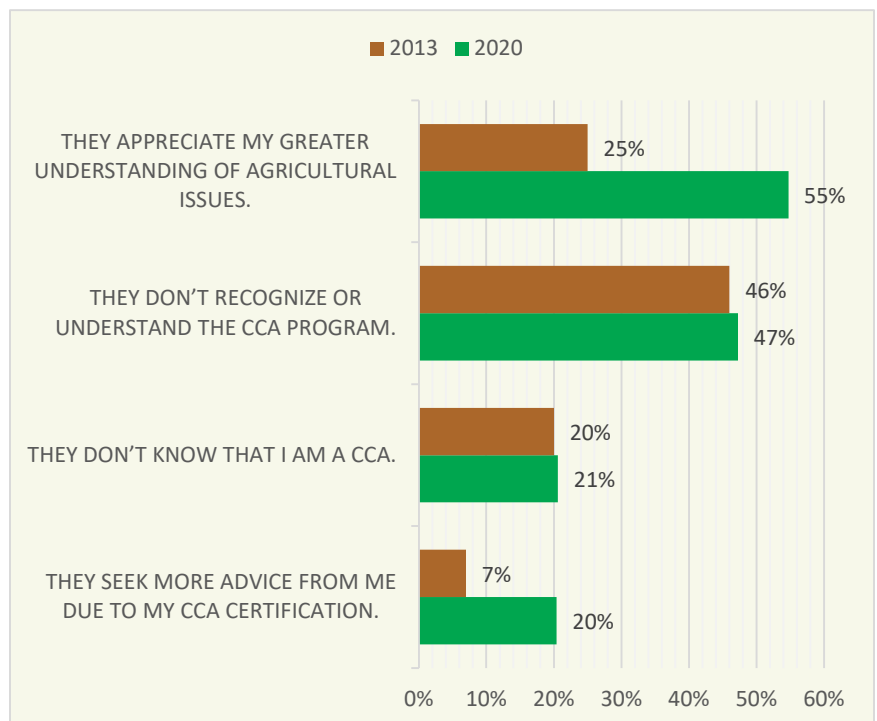


FINDINGS: CLIENT RESPONSE

EXHIBIT 20: CLIENT RESPONSE TO CCA CERTIFICATION

When asked how their customers have responded to their CCA certification, over half (55%) indicated their customer appreciate their greater understanding of agricultural issues. This is up significantly from 2013, where only 25% of respondents selected that answer.

There was also a significant increase of 7% to 20% of respondents saying that their clients seek more advice because of the CCA certification.



FINDINGS: OVERALL SATISFACTION

EXHIBIT 21: LIKLIHOOD OF RECOMMENDING CCA TO COLLEAGUE/MAINTAINING CCA

76% of certificate holders are likely to recommend CCA certification to a colleague, which is up from 67% in 2013 and almost equal with 77% reported in 2005.

89% of certificate holders say they are likely to maintain their CCA certification five years from now, which is up from 78% in 2013 and equal to the 89% reported in 2005.

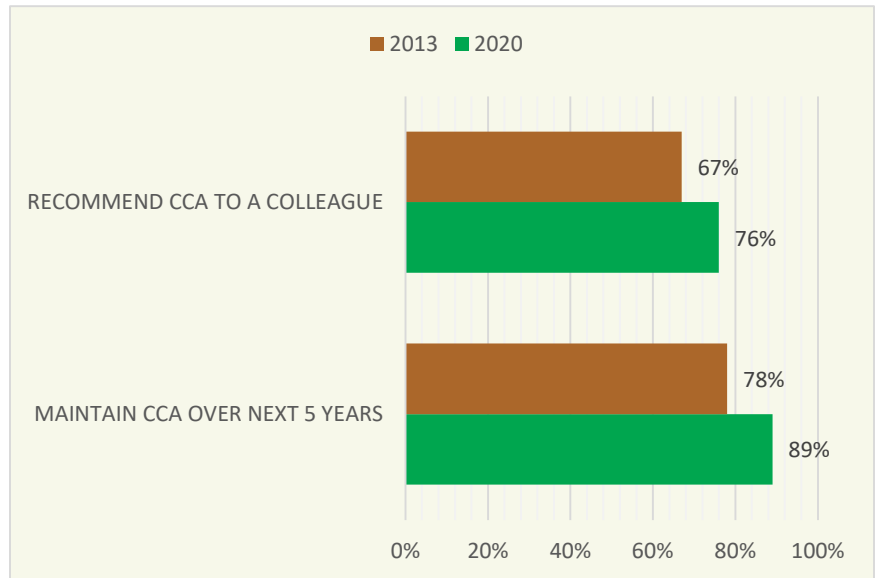


EXHIBIT 22: OVERALL SATISFACTION WITH CCA PROGRAM

Three-fourths (75%) of certificate holders say they are satisfied with the CCA program. This is up from 58% reported in 2013, and just slightly lower than 78% reported in 2005.

Certificate holders over 64 years old were significantly more likely than those 25-64 to be “very satisfied” with the CCA program.

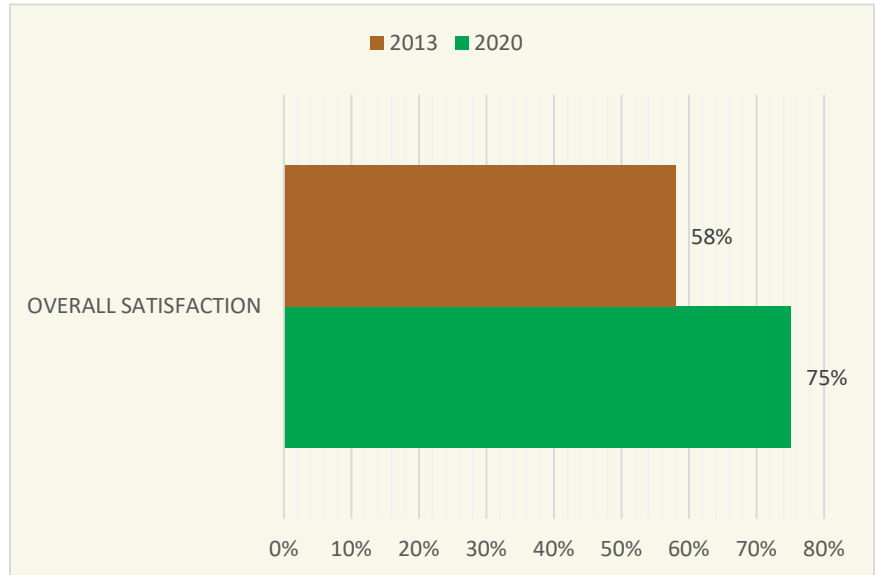


EXHIBIT 23: FREQUENCY OF CCA VS. CLIENT INITIATION OF CONSERVATION OPPORTUNITIES

When asked how often their clients inquire about or the CCA initiates on-farm conservation practices or conservation funding opportunities, 39% said it was once or a few times per year.

29% reported that clients inquired very rarely or never compared to 14% of certificate holders.

35% of CCAs initiate the conversation once or a few times per month, compared to 23% of clients.

12% of CCAs initiate the conversation as often as once or a few times per week, compared to 8% of clients.

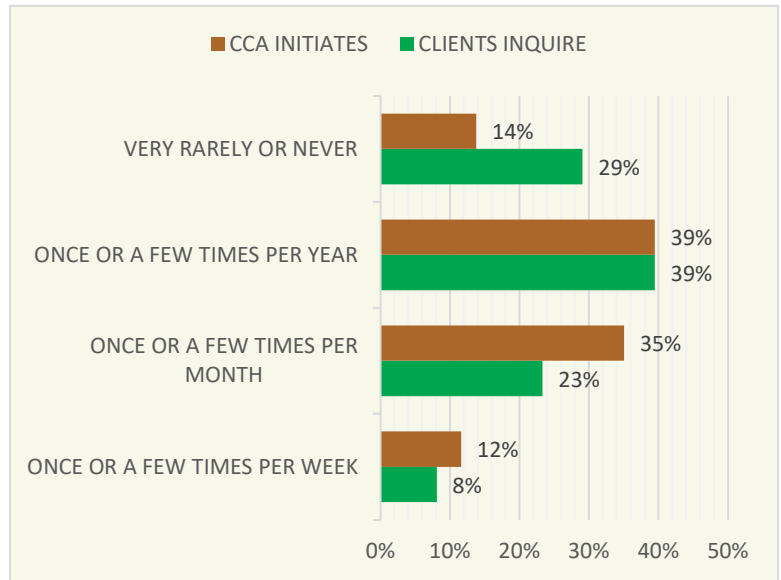


EXHIBIT 24: ON-FARM CONSERVATION PRACTICES DISCUSSED/IMPLEMENTED WITH CLIENTS

In the past year, the most popular on-farm conservation practices that CCAs have discussed with their clients include cover crops (87%), conservation tillage (72%), and enhanced efficiency fertilizers (62%).

These are also the practices that have been implemented by most of the clients – 82%, 70%, and 55%, respectively.

Other popular topics include drainage water management, complex crop rotations, field-level profit mapping, and precision irrigation/soil moisture monitoring.

Topics both discussed and implemented brought up in the comments included crop and soil management, variable rate inputs, and fertilizer application.

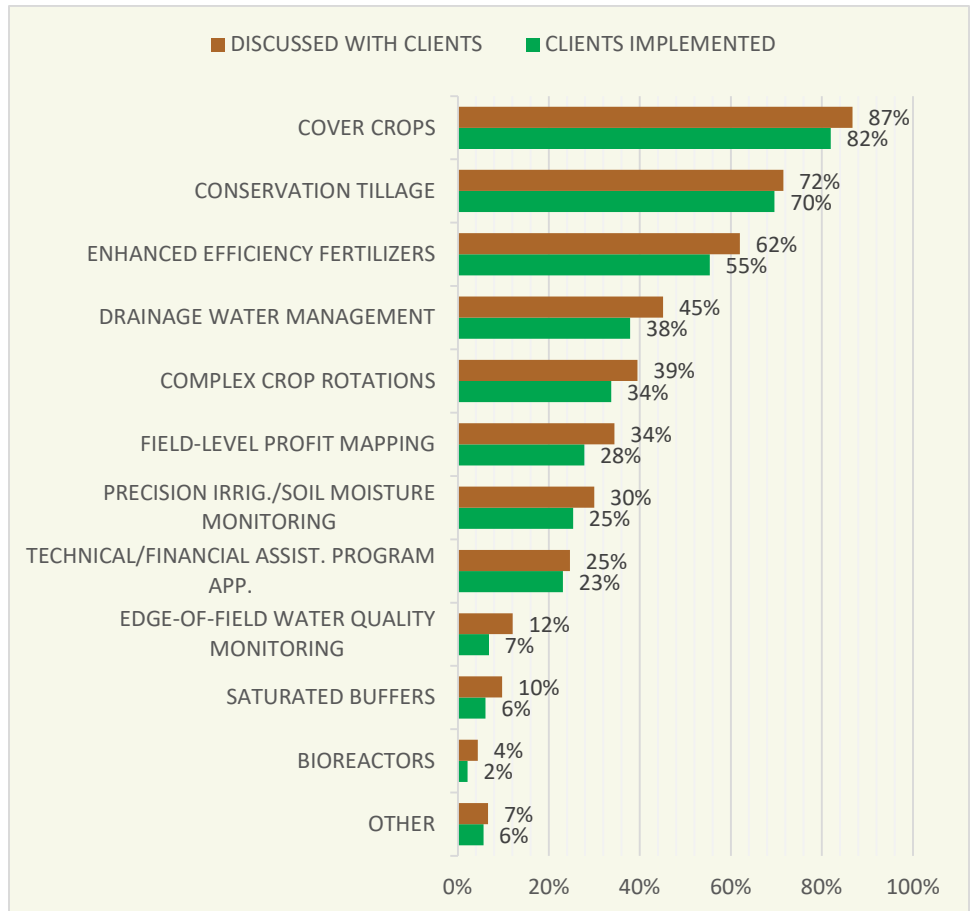


EXHIBIT 25: ORGANIZATIONS SOUGHT FOR CONSERVATION RESOURCES

The organizations certificate holders most commonly seek conservation education, guidance, and/or financial assistance from are the USDA-NRCS (56%), their state/provincial department of agriculture (37%), and the Certified Crop Adviser (CCA) Program (37%).

Other organizations included in the comments were universities, extension offices, and industry leaders such as chemical and fertilizer companies.

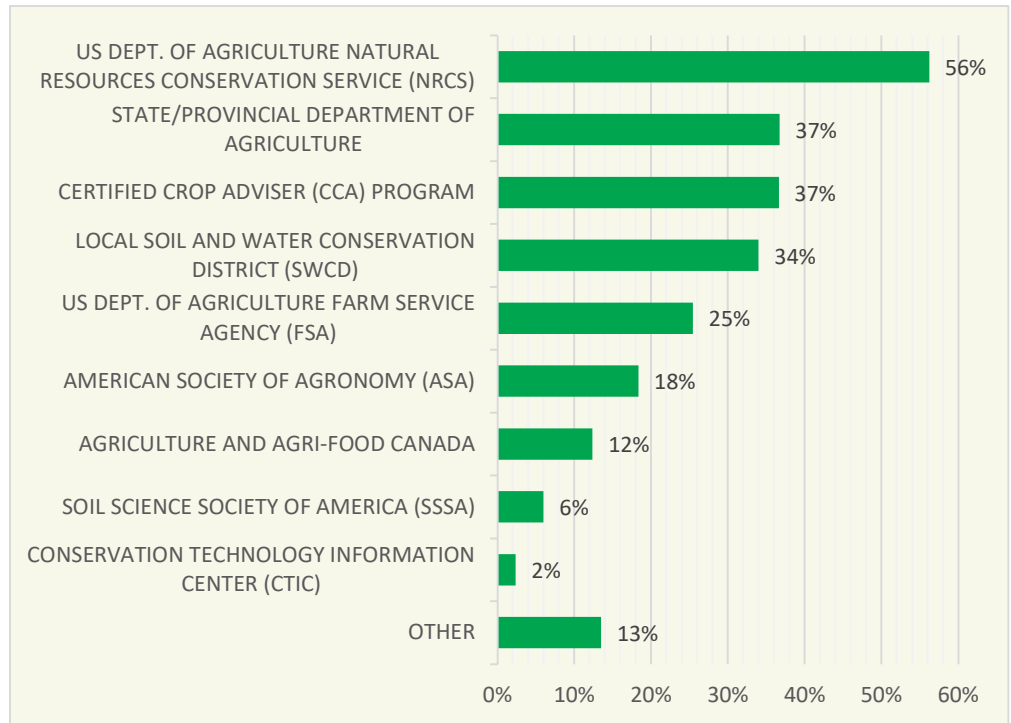
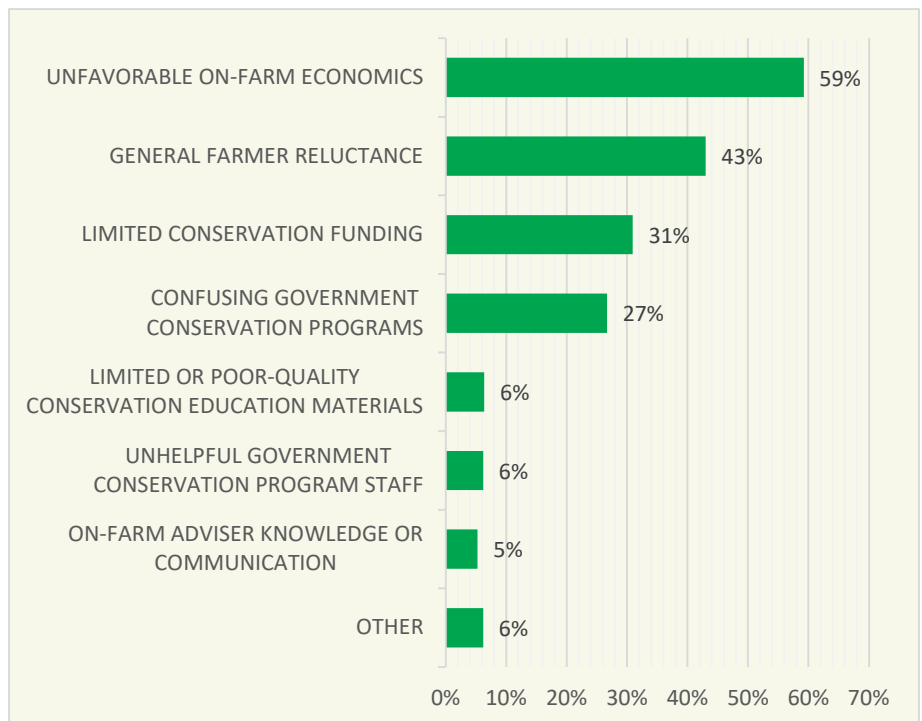


EXHIBIT 26: IMPEDIMENTS TO ON-FARM CONSERVATION PRACTICES

Of the impediments to on-farm conservation practices that respondents identified, the top four were unfavorable on-farm economics (59%), general farmer reluctance (43%), limited conservation funding (31%) and confusing government conservation programs (27%).

Other, less common, impediments included limited or poor-quality conservation education materials (6%), unhelpful government conservation program staff (6%), and on-farm adviser knowledge or communication (5%).

Comments on this question varied greatly, but common responses were cost, lack of regulation, misinformation, and inconsistent guidance.



FINDINGS: SUSTAINABLE CROP PRODUCTION

EXHIBIT 27: FREQUENCY OF CCA VS. CLIENT INITIATION OF SUSTAINABLE TECHNIQUES/TECHNOLOGIES

When asked how often do their clients inquire or they initiate conversations about making their farms more sustainable through the adoption of sustainable crop production techniques or technologies, almost half of CCAs responded once or a few times per year (41% of CCAs and 42% of clients).

Almost one-third of clients (29%) and 17% of CCAs very rarely or never initiate conversations about sustainability.

33% of CCAs and 24% of clients initiate sustainability conversations once or a few times per month.

9% of CCAs and 5% of clients initiate the conversations as often as once or a few times per week. CCAs over 64 are significantly less likely to initiate once or a few times per week.

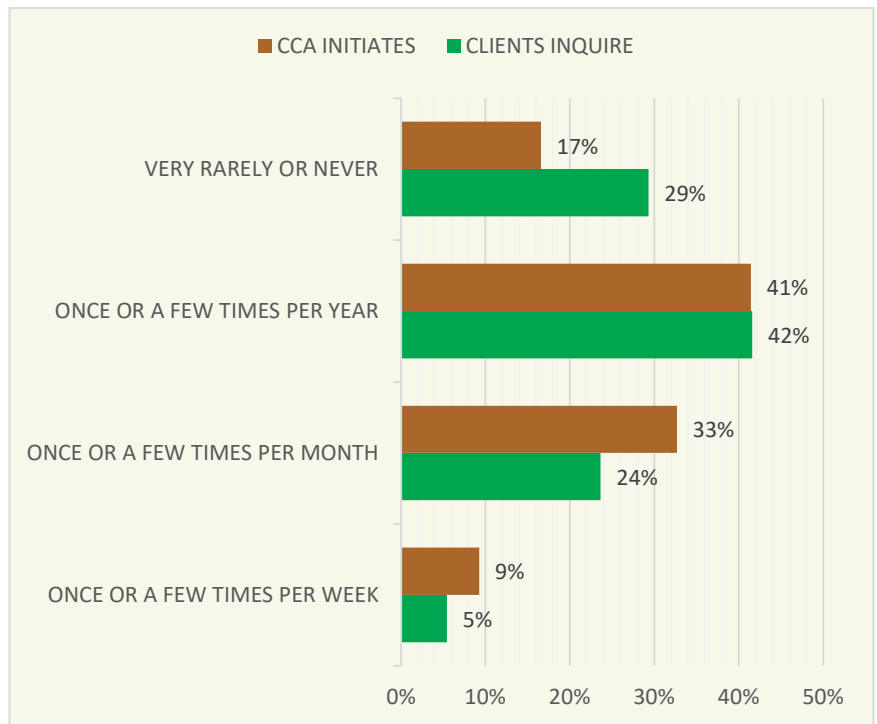


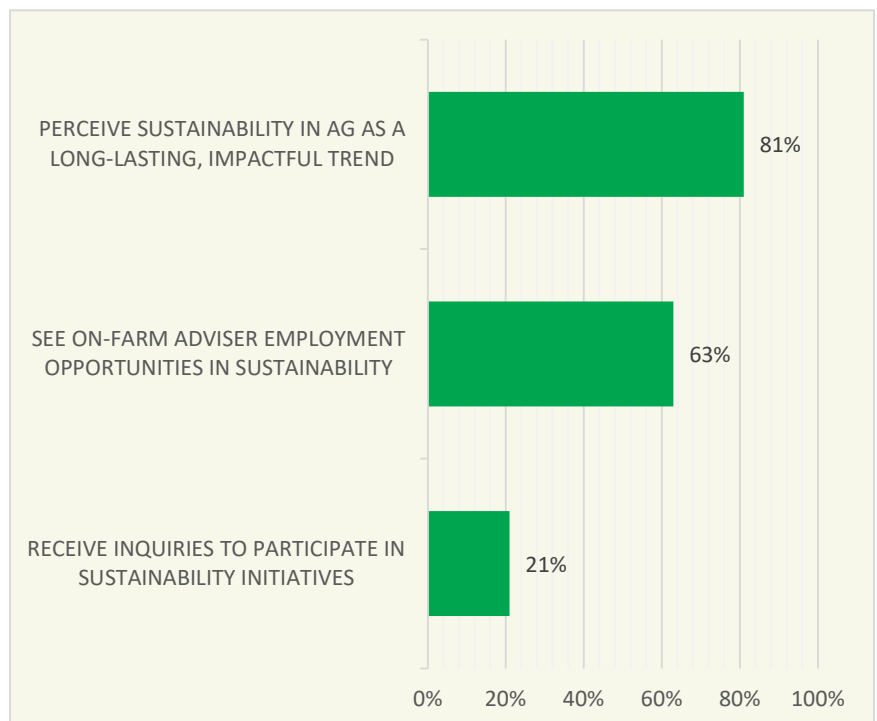
EXHIBIT 28: SUSTAINABILITY INQUIRIES/OPPORTUNITIES/TRENDS

The results from three yes or no questions are charted to the right.

Only 21% of certificate holders indicated they have received inquiries from food or other consumer-facing companies regarding their interest in participating in company sustainability initiatives.

63% of certificate holders think there are employment or income opportunities for on-farm advisers in the area of sustainability services.

81% of certificate holders perceive the sustainability discussion in agriculture as a long-lasting, impactful trend rather than a temporary fad. Certificate holders aged 25-34 years are significantly less likely than 35+ to believe sustainability is a temporary fad.



FINDINGS: SUSTAINABLE CROP PRODUCTION

EXHIBIT 29: FUTURE WORK FOCUSED ON SUSTAINABILITY TECHNIQUES/TECHNOLOGIES

When asked how much of their future work will focus on improving the adoption of sustainability techniques or technologies among clients, half believe it will be between 11-50%.

Only 14% of certificate holders believe that more than 50% of their future work will be improving sustainable technologies.

22% believe it will be 5-10% of their future work, and 14% believe it will be less than 5% of their work.

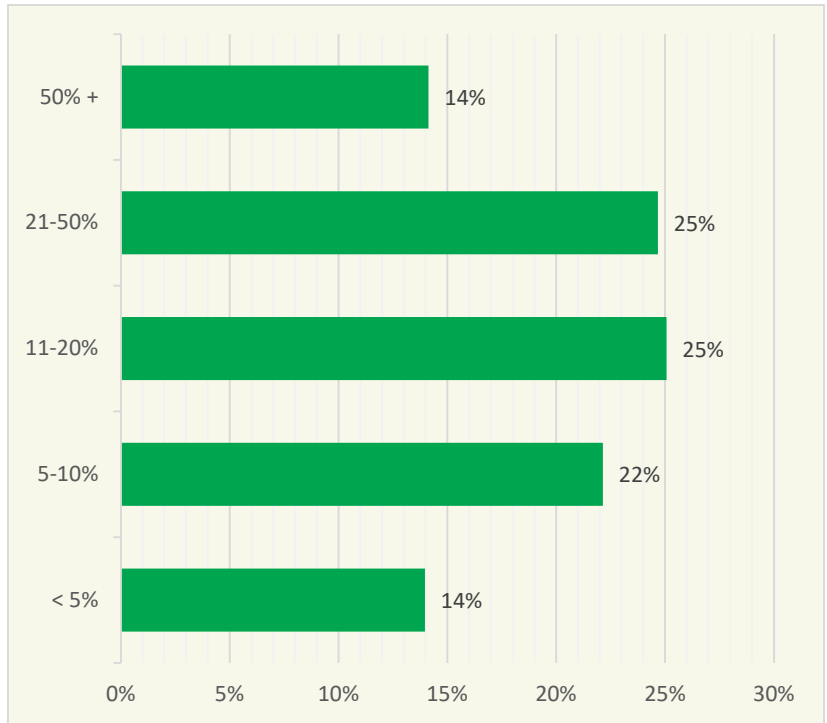


EXHIBIT 30: GROUPS MOST LIKELY TO COLLABORATE FOR SUSTAINABILITY

Of the groups certificant would be most likely to collaborate with when implementing sustainability techniques or technologies with your clients, crop input companies were chosen by 66% of respondents. About one-third of respondents said they would work with food companies (35%), field to market (33%), and farm machinery companies (31%).

Certificants indicated that they would be most likely to collaborate with farmer-led organizations, local farm associations, or Universities/Extension offices.

31% of certificant already collaborate with one or more groups to implement sustainability techniques or technologies with their clients.

Of those that are already collaborating with groups, the most common are NRCS (51 respondents), Pheasants Forever/Quail Forever (50), Ducks Unlimited (50), The Nature Conservancy (45), Crop Input Companies (20), and Field to Market (19).

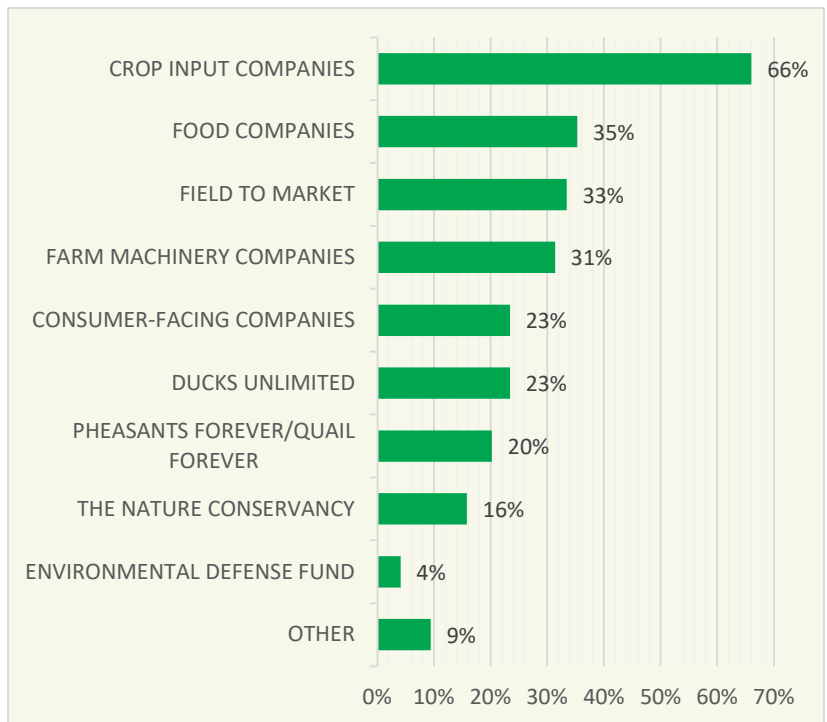


EXHIBIT 31: PRIMARY ELECTRONIC DEVICE

The primary electronic device used by certifiants is a laptop or desktop computer (52%). 42% of certifiants primarily use a smartphone, and only 6% primarily use a tablet.

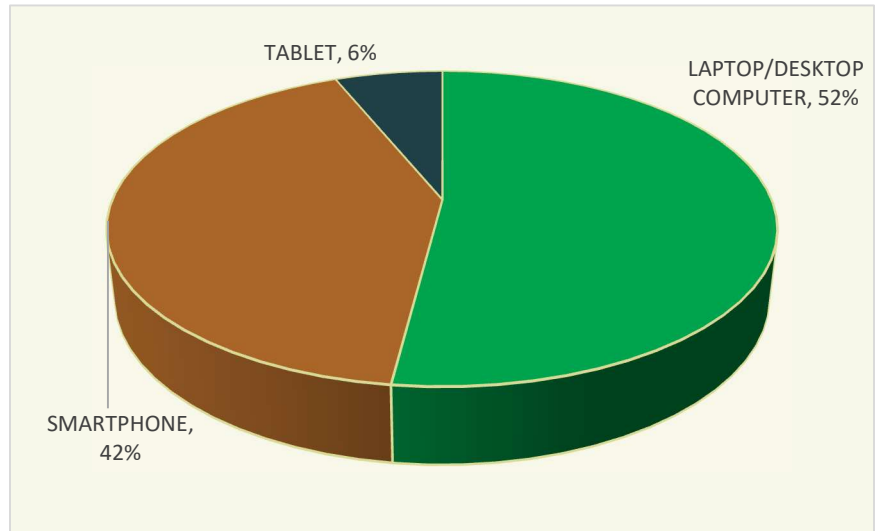


EXHIBIT 32: ACTIVITIES COMPLETED ON ELECTRONIC DEVICES

Most certifiants (95%) use their device to read or write emails, monitor markets and/or weather (70%), and read industry publications, websites, and newsfeeds (64%).

About half of certifiants use their device to perform education activities (50%), perform field mapping work (48%), and monitor social media (45%).

Using their device to perform education activities had the greatest increase from 2013 to 2020.

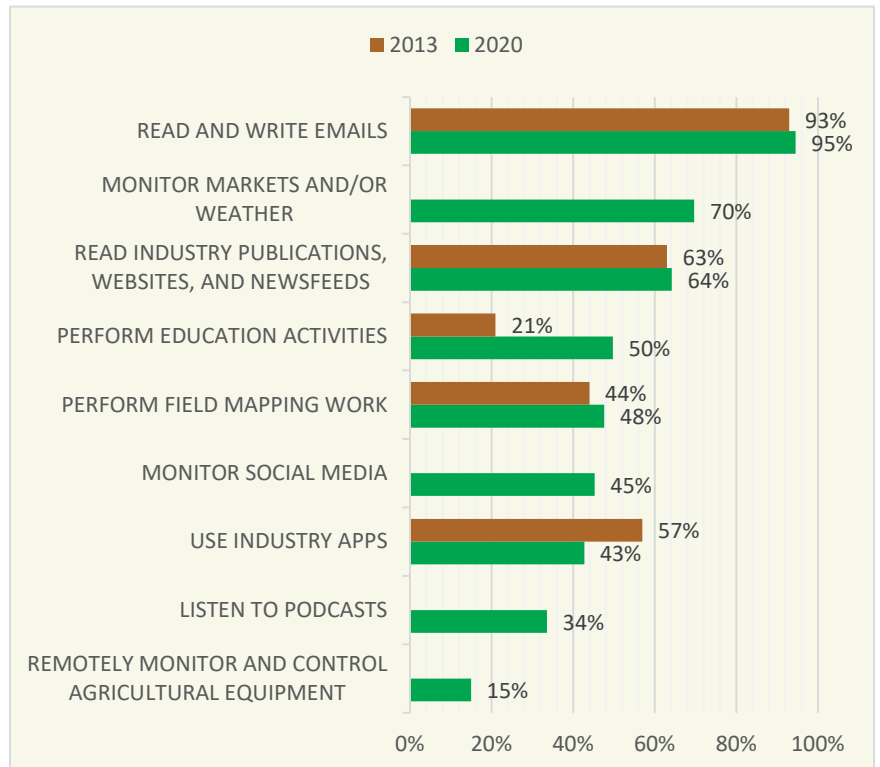


EXHIBIT 33: ELECTRONIC COMMUNICATION USED ROUTINELY

Most certificants routinely use electronic communication for phone calls (75%), emails (64%), and text messaging (55%).

Certificants aged 25-34 are most likely to communicate by phone call and those 35-44 years are most likely to communicate by text messaging.

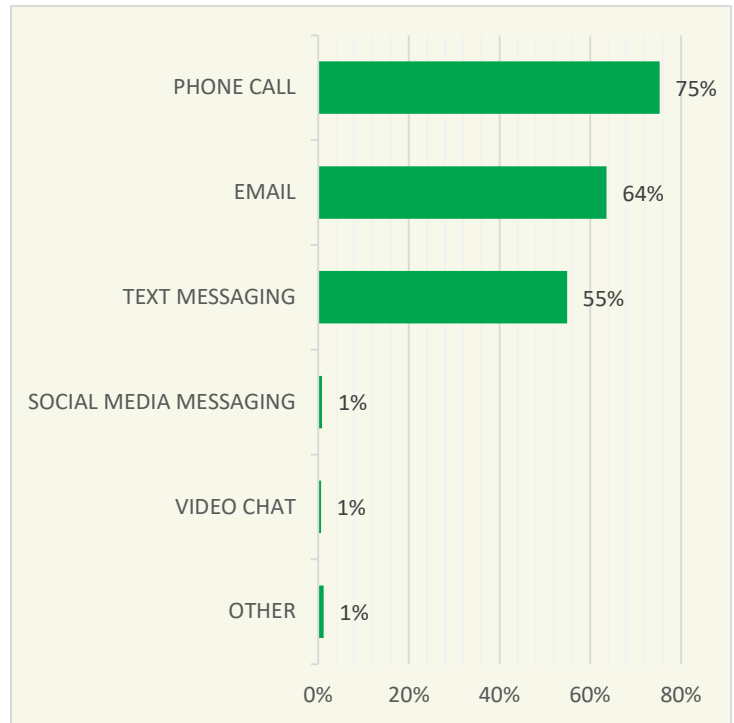


EXHIBIT 34: SOCIAL MEDIA PLATFORMS USED ROUTINELY

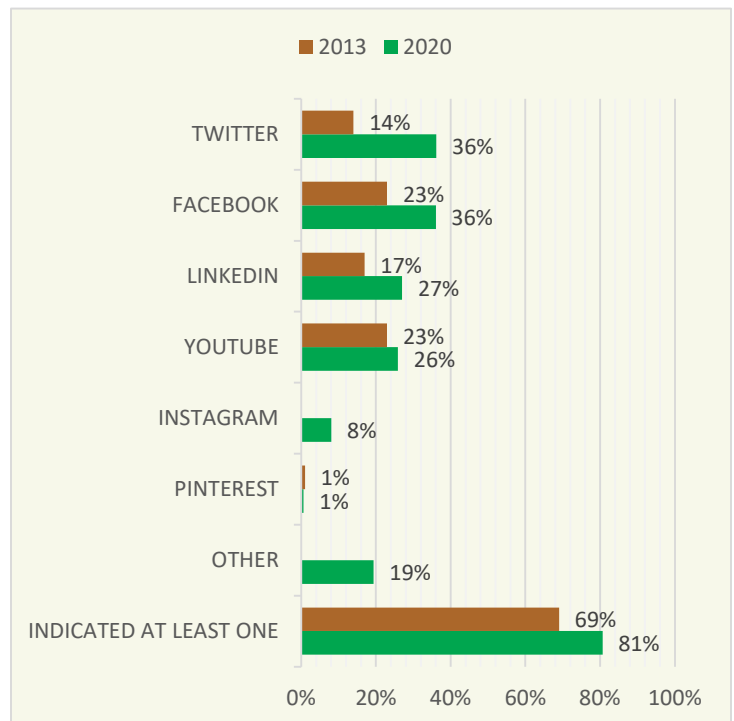
36% of certificants routinely use the social media platforms Twitter and Facebook for professional work. These are both up from 2013 results – Twitter has increased by 22% and Facebook by 13%. Certificants aged 44 and under are significantly more likely to use Twitter whereas those over 45 are more likely to use YouTube.

27% routinely use LinkedIn and 26% routinely use YouTube, which have also increased since 2013.

Less popular platforms were Instagram (8%) and Pinterest (1%).

In 2013 69% of certificants indicated they used at least one of the platforms – in 2020 that increased to 81% of certificants.

19% indicated “other” and commented that they did not use any social media platforms.



FINDINGS: PRECISION AGRICULTURE TECHNOLOGIES

EXHIBIT 35: PRECISION AGRICULTURE TECHNOLOGIES USED ROUTINELY

Certificate holders report that they commonly use precision agriculture technologies and techniques including precision soil sampling (48%), variable rate fertilization (43%), and monitoring grain yield (35%).

Less frequently used technologies include Geographic Information System (GIS) (27%), prescription field management program (21%), and variable rate planning (18%).

In the comments certificate holders indicated that they use all of the technologies listed.

When asked what three areas in which certificate holders see increasing technology adoption on the farm, top answers included variable rate technology, fertilizer application, soil/yield mapping, and precision planting.

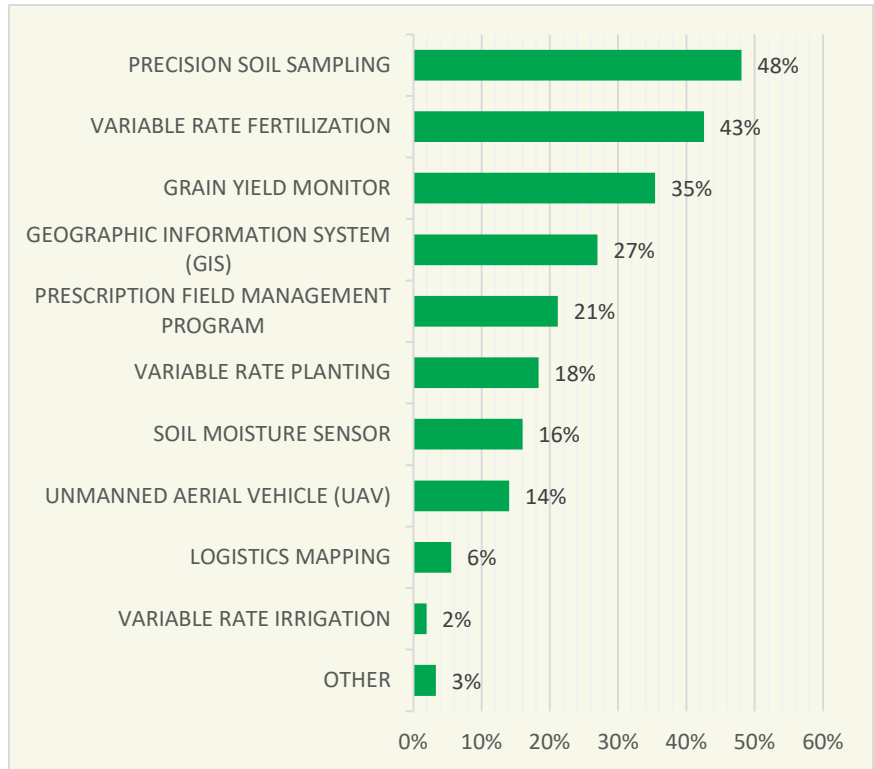


EXHIBIT 36: COMFORT LEVEL WITH TECHNOLOGIES

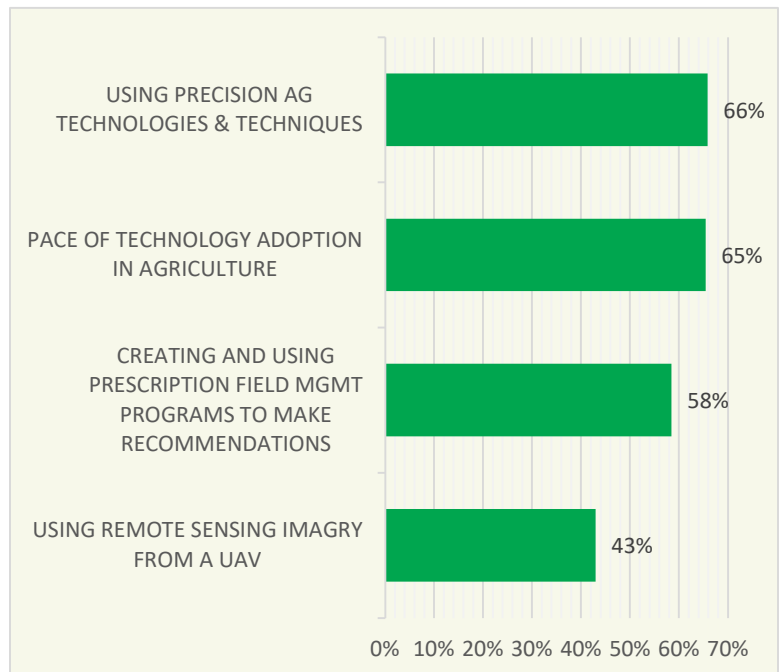
Certificants were asked how comfortable they were with various technologies. They rated these activities on a scale of 1 (not comfortable) to 5 (comfortable). This chart shows the percentage of respondents who selected 4 or 5.

66% of certificants reported being comfortable using precision agriculture technologies and techniques.

65% of certificants reported being comfortable with the current pace of technology adoption in agriculture.

58% of certificants reported being comfortable creating and using prescription field management programs to make recommendations.

43% of certificants reported being comfortable using remote sensing imagery from an unmanned aerial vehicle (UAV), airplane, or satellite to make crop management recommendations.



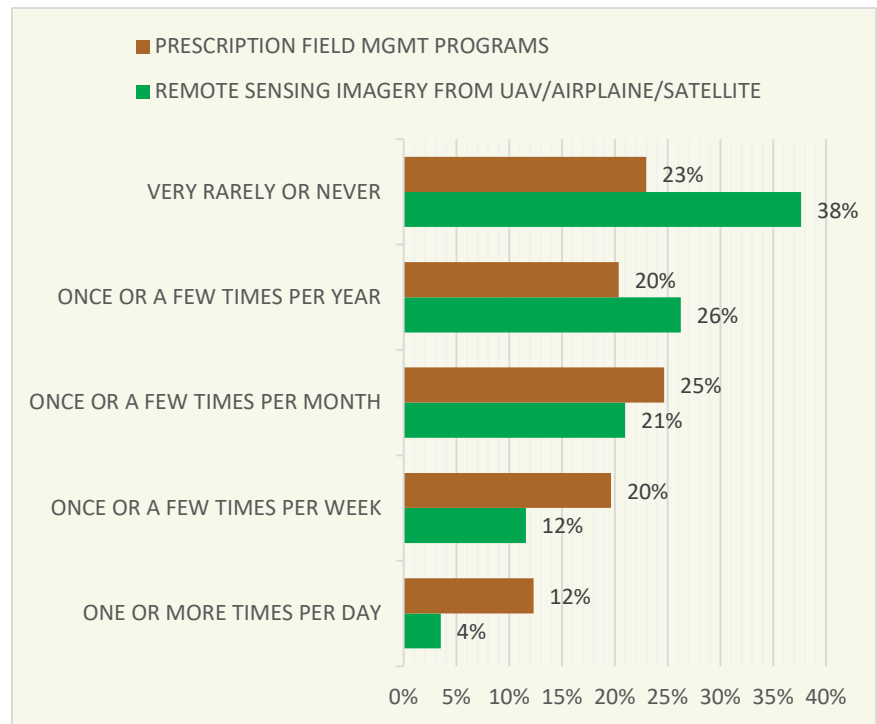
FINDINGS: TECHNOLOGY USE

EXHIBIT 37: FREQUENCY OF TECHNOLOGY USE

Certificate holders were asked how often they use prescription field management programs or remote sensing imagery from an unmanned aerial vehicle (UAV), airplane, or satellite to make crop management recommendations.

Results were mixed for using prescription field management programs - 23% of certificants report these very rarely or never, 20% once or a few times per year, 25% once or a few times per month, 20% once or a few times per week, and 12% one or more times per day.

Certificate holders use remote sensing imagery from a UAV less frequently – 38% report using it very rarely or never, 26% once or a few times per year, 21% once or a few times per month, 12% once or a few times per week, and only 4% one or more times per day.



FINDINGS: SMARTPHONE APPS

73% of certificate holders use agronomy, crops, soils, or related apps on your smartphone or tablet during their work. Certificate holders over 45 years old are significantly less likely to use apps.

The agronomy, crops, soils or related apps used by most certificants include Climate FieldView, AgPhd, Agrian, other weather apps, Certified Crop Adviser App, Granular Insights, John Deere, Weed ID, and SoilWeb.

FINDINGS: CONTINUING EDUCATION UNITS (CEUS)

EXHIBIT 38: PREFERENCE FOR EARNING CEUS

When asked how they prefer to earn Continuing Education Units (CEUs), 83% selected in-person conferences, 46% webinar recordings, and 28% live webinars.

Less popular methods include print magazine article and accompanying quiz (14%), podcast and accompanying quiz (8%), and other (3%).

Certificate holders older than 45 are more likely to prefer the print magazine or live webinar, whereas those 44 and under prefer recorded webinars or podcasts.

Other methods mentioned in the comments included field days, internal training, and online articles.

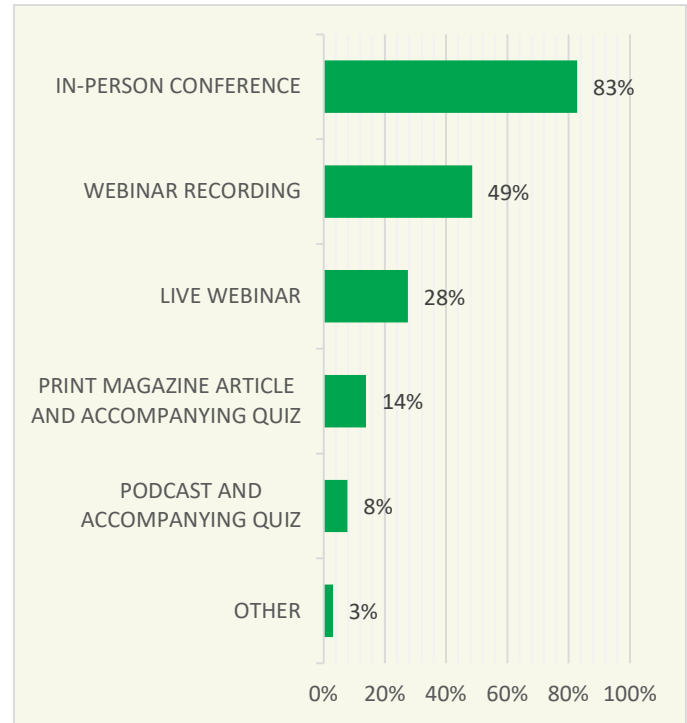
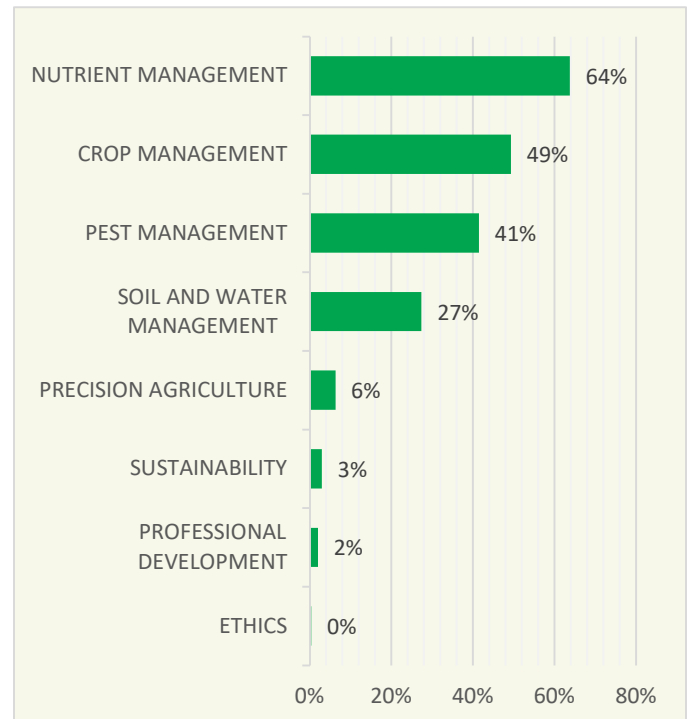


EXHIBIT 39: USEFULNESS OF CEU CATEGORIES

Certificate holders were asked which of the CEU categories has been the most useful for their daily work. 64% selected nutrient management, 49% crop management, 41% pest management, and 27% soil and water management.

None of the precision agriculture, sustainability, professional development, and ethics categories received more than 6%.



FINDINGS: CONTINUING EDUCATION UNITS (CEUS)

EXHIBIT 40: CEU CATEGORIES RANKED FROM EASIEST TO HARDEST

Certificate holders were asked to rank the following Continuing Education Unit (CEU) categories from easiest to hardest to fulfill. Three of the top four categories that are most useful were also the easiest to fulfill – nutrient management (70% reported easy), crop management (79%), and pest management (74%). 47% reported that soil and water management units were easy to fill.

The hardest units to fill are ethics (27%), precision agriculture (26%), and sustainability (27%).

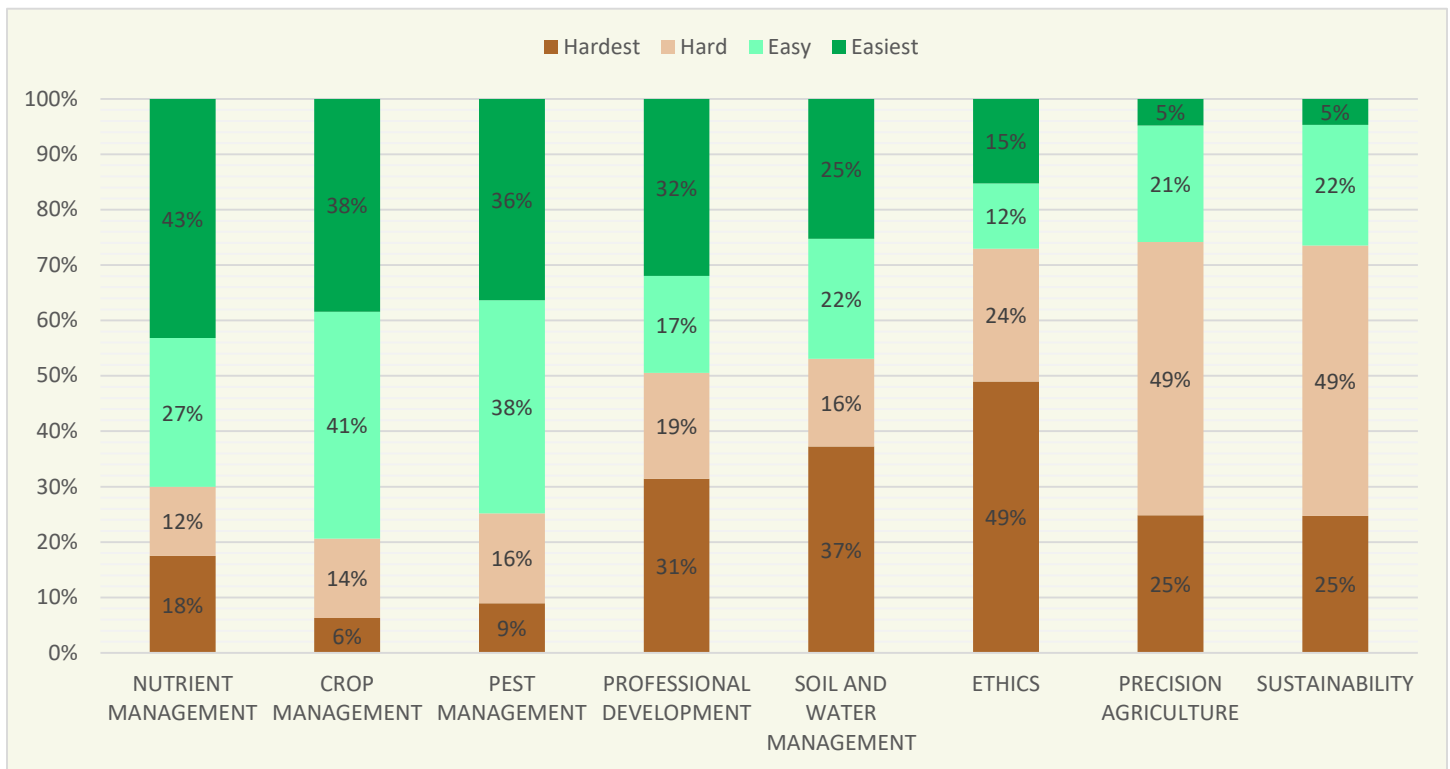


EXHIBIT 41: DESIRED EDUCATIONAL PROGRAMMING

The topic areas that respondents selected for more CCA education programming were state-, province- or region-focused material (68%), agriculture hot topic series (62%), and timely topic agronomy series (54%).

29% chose specialty crop information, 21% chose specialty certification CEUs, and only 8% chose urban agriculture training.

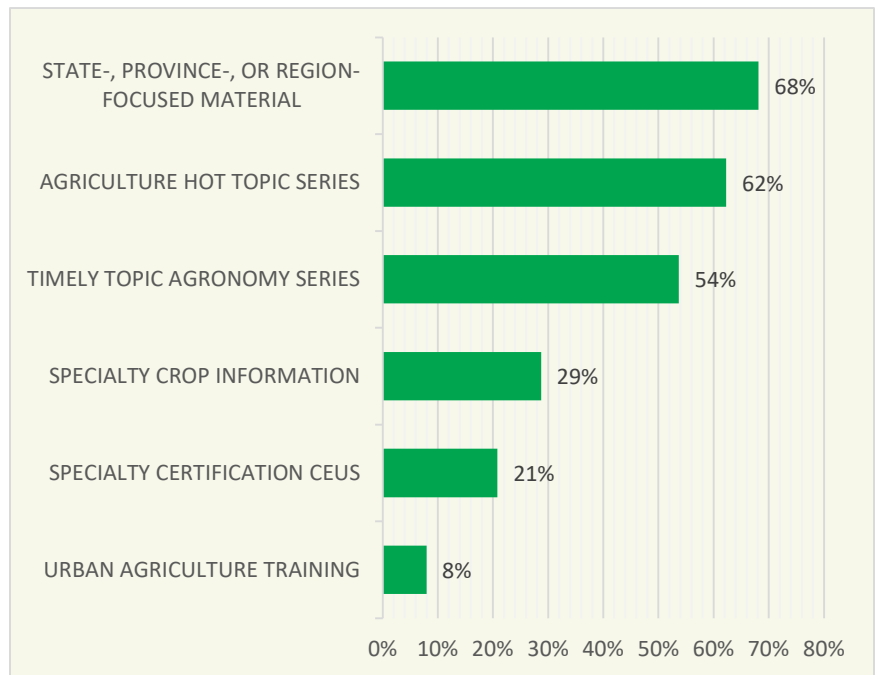


EXHIBIT 43: DESIRED IN-PERSON, PRINT, OR INTERNET EDUCATION TOPICS

Certificate holders were asked which topics they would like more in-person, print, or internet-based education – 50% selected cover crops, 46% enhanced efficiency fertilizers, 36% field-level profit mapping, and 35% complex crop rotations.

4% of certificate holders selected other topics including soil health, specialty crops, and microbiology.

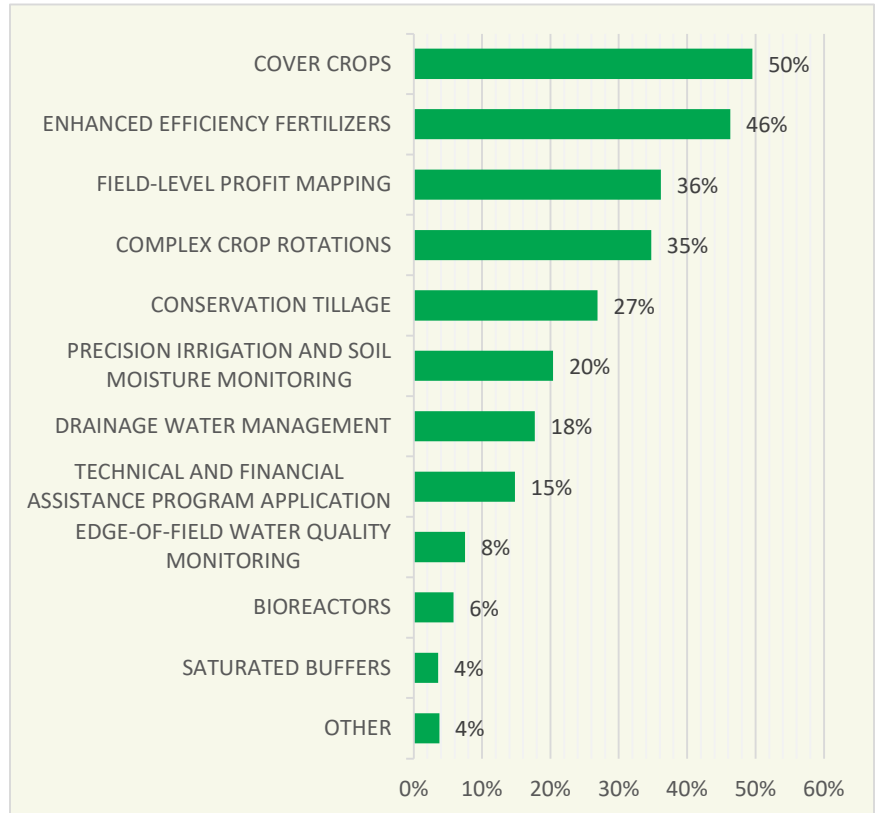


EXHIBIT 42: DESIRED TECHNOLOGY EDUCATION TOPICS

For the topics listed over half of respondents indicated they would like more education via in-person, print, or internet-based methods for prescription field management programs (63%), remote sensing imagery (56%), use of on-farm sensors/sensor networks (50%).

33% would like more education on Unmanned Aerial Vehicles (UAVs) and 28% on use of machine guidance technologies.

2% of respondents selected other topics which included precision/autonomous equipment and farm financing/marketing.

Respondents were asked of all potential education topics to list three specific areas in which they would like more education. The top choices were soil and water health, cover crops, nutrient management, precision agriculture technology, and remote sensing imagery.

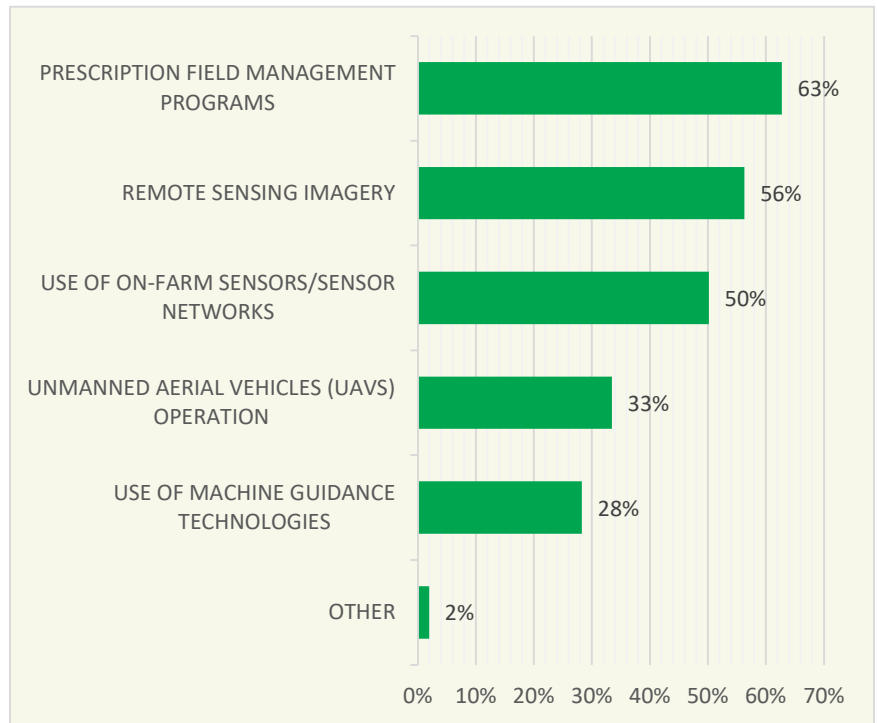


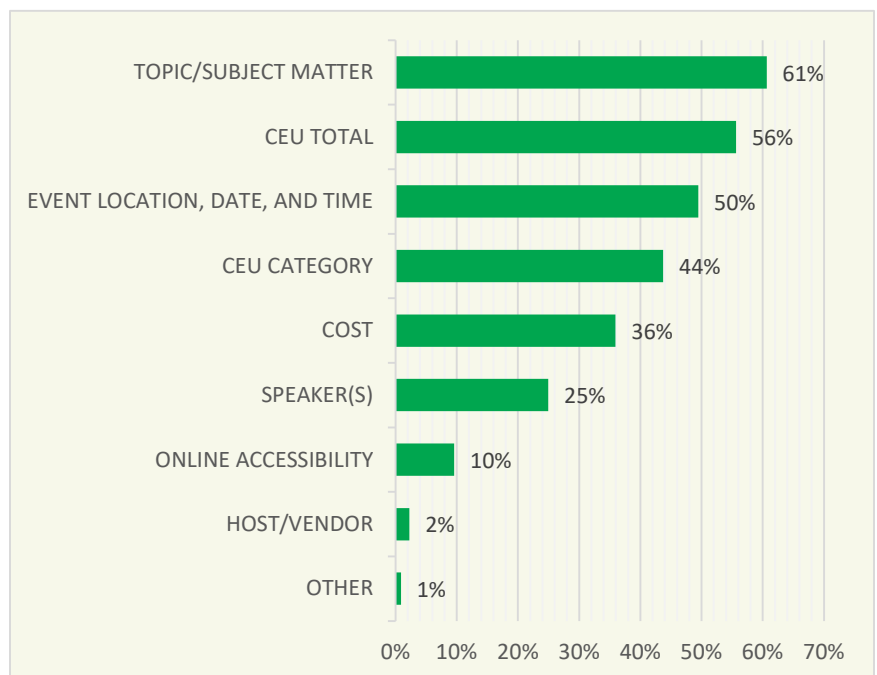
EXHIBIT 44: INFLUENCES ON DECISION TO REGISTER FOR EDUCATION EVENT

Of items that principally influence their decision to register for an in-person or online education event, 61% of certificate holders selected topic/subject matter, 56% selected CEU total, and 50% event location, date, and time.

Lower on the priority list were CEU category (44%), cost (36%), speakers (25%), online accessibility (10%), and host/vendor (2%).

Online accessibility is significantly more important to certificate holders under 25 years old.

1% of certificate holders indicated other influencers of which a primary was applicability to local crops.



FINDINGS: EDUCATIONAL RESOURCES

EXHIBIT 45: “HOT” TOPIC INFORMATION SOURCES

When certificant desire to learn about a new or “hot” agricultural topic, 58% consult an industry, university, or government website. Almost half will consult a professional colleague (49%), an in-person conference (48%), or a trade magazine/newsletter (47%).

About one-third will consult an online course (36%), a book, scientific journal, or white paper (31%), or social media (28%).

Only 14% will consult a video and 13% a podcast.

Certificants over age 45 are significantly more likely to attend an in-person conference and less likely to consult social media.

25% of certificant follow podcasts, YouTube channels, or blogs for work-related education. Certificant under 44 years old are significantly more likely to follow one of these platforms.

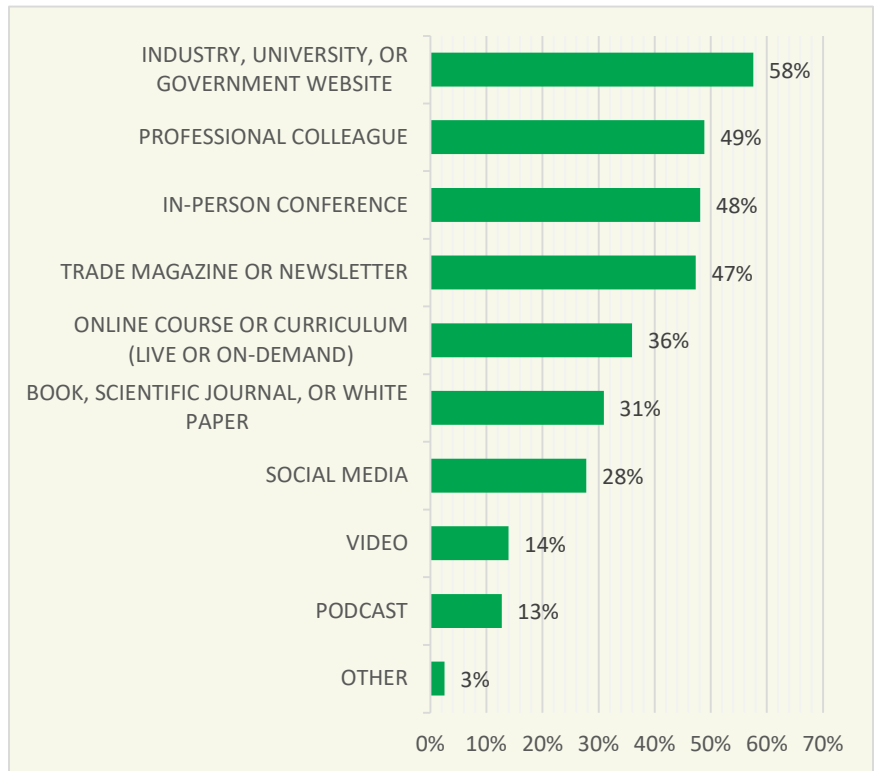


EXHIBIT 46: POPULAR PODCASTS, YOUTUBE CHANNELS, AND BLOGS

Certificant were asked to list their favorite podcasts, YouTube channels, or blogs.

The most popular outlets written in by respondents were Ag PhD (podcast and YouTube channel), Wheat Pete’s World (podcast), and Millennial Farmer (Podcast and YouTube channel).

The top ten outlets are charted on the right – all were podcasts, and two outlets also have a YouTube channel.



EXHIBIT 47: PREFERRED DEVICE FOR ONLINE EDUCATION

When asked how they prefer to join an online education event or view an online education resource, most certificate holders chose a work computer (74%).

15% would prefer to use their personal computer, 6% a tablet, 4% a smartphone, and 1% selected other, commenting that they do not use a device for online education.

Certificants aged under 44 years are significantly more likely to prefer a work computer whereas those 45 and over prefer a personal computer.

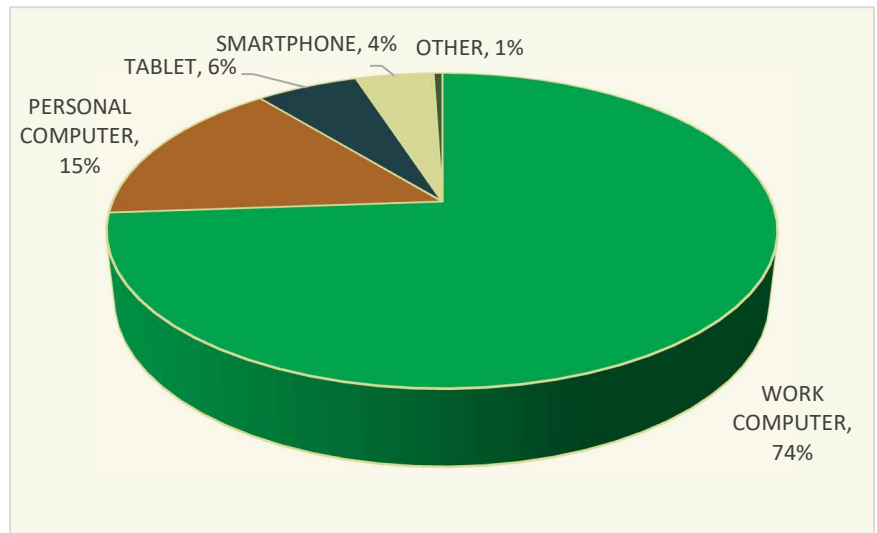
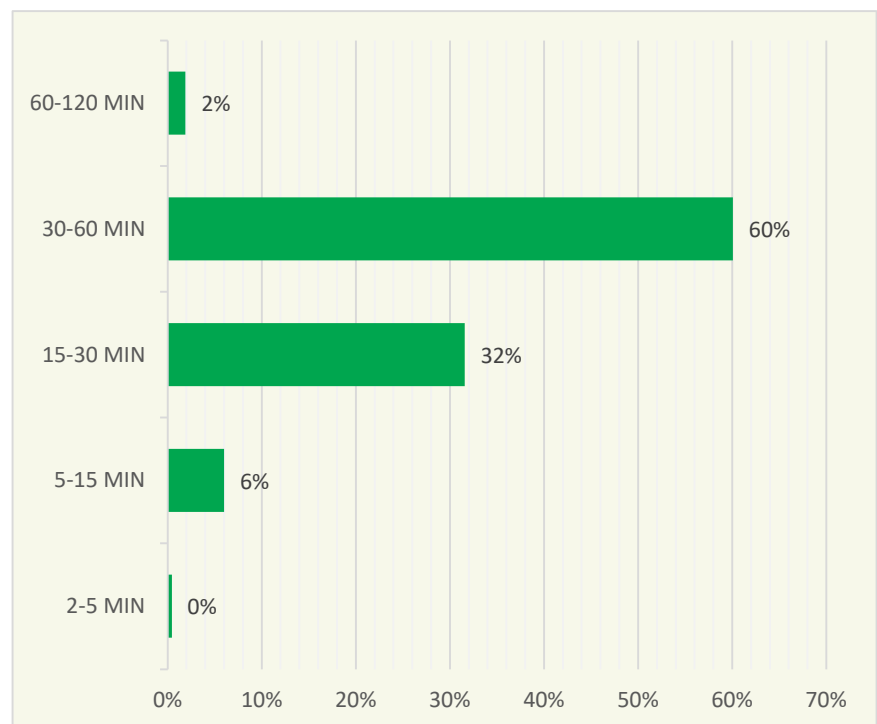


EXHIBIT 48: PREFERRED LENGTH OF TIME FOR ONLINE EDUCATION

When asked their preferred length of time for an online education event, most certificate holders selected 30-60 minutes (60%). 32% selected 15-30 minutes. Very few certificate holders selected less than 15 or more than 60 minutes.

30% of certificate holders indicated that rural internet access and speed issues restrict their ability to utilize online education.



FINDINGS: CONFERENCE ATTENDANCE

EXHIBIT 49: LIKELIHOOD OF ATTENDING CONFERENCES

Certificants are not likely to attend a national Certified Crop Adviser (CCA) conference or the annual American Society of Agronomy (ASA) Sustainable Agronomy Conference.

Just 14% indicated they would likely attend a national CCA conference, which is almost unchanged from the 15% reported in 2013.

Even fewer – 8% - indicated they would attend the ASA Sustainable Agronomy Conference.

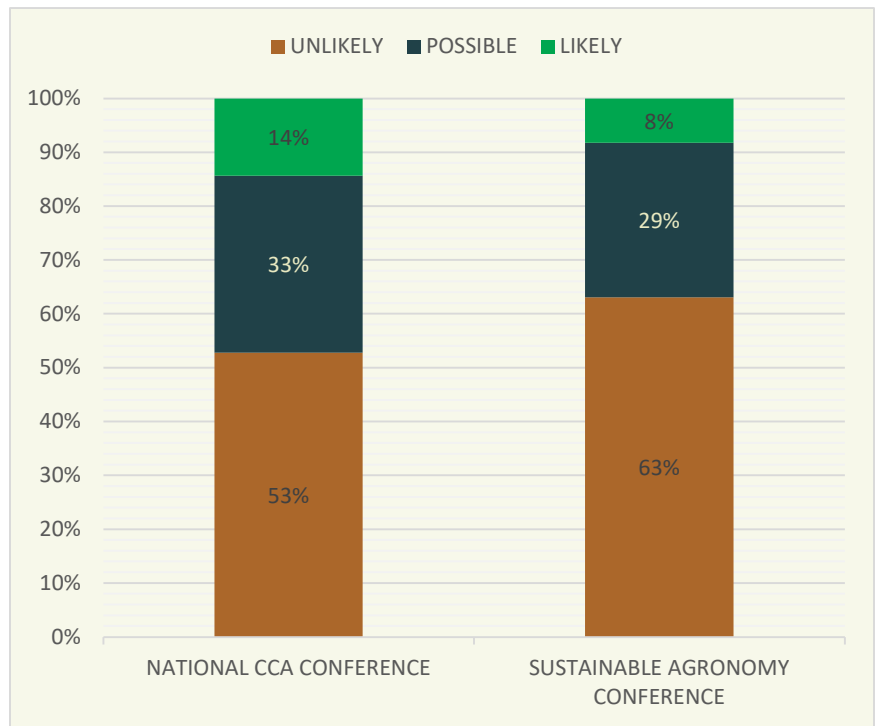


EXHIBIT 50: PREFERRED CONFERENCE/IN-PERSON EDUCATION EVENTS

Of the type of conferences/in person education events certificants prefer to attend for work, state-, province-, or region-focused conferences and field days were chosen by 75% and 65% of respondents, respectively.

Less than one-fifth prefer to attend trade shows (18%), research conferences (17%), or topic-specific national conferences (12%).

Certificants were asked to write in their two favorite conferences or in-person education events. The most popular were the annual CCA meeting, the Indiana CCA Conference, California Association of Pest Control Advisers (CAPCA) Conference, the Commodity Classic, and the Info Ag Conference.

