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| **2020 VEGETABLE CHEMICAL USE SURVEY** | | | |
|  | OMB No. 0535-0218  Approval Expires: 05/31/2023  Project Code: 136 QID: 035219  SMetaKey: 2069 | | |
|  |
| **SURVEY_LOGO_1:USDA_logo_bw.gif** | **http://nassnet/miso/PRIME_Center/Communication_Guidelines/Official_Logos/NASS%20Graphic/nass_logo_bw.jpg** | **NATIONAL**  **AGRICULTURAL**  **STATISTICS**  **SERVICE** |

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|  |  |  |  |  |  | U.S. Department of Agriculture  National Operations Division  9700 Page Avenue, Suite 400  St. Louis, MO 63132-1547  Phone: 1-888-424-7828  Fax: 1-855-415-3687  E-mail: nass@nass.usda.gov |

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|  | Arizona Enterprise |

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| **VERSION**  **01** | **POID**  **\_\_\_ \_\_\_ \_\_\_ \_\_\_ \_\_\_ \_\_\_ \_\_\_ \_\_\_ \_\_\_** | **SUBTRACT**  **\_\_\_ \_\_\_** |  |

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| CONTACT RECORD | | |
| DATE | TIME | NOTES |
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| **INTRODUCTION:**  [*Introduce yourself, and ask for the operator. Rephrase in your own words*.]  We are collecting information on chemical use and need your help to make the information as accurate as possible. The information you provide will be used for statistical purposes only. Your responses will be kept confidential and any person who willfully discloses ANY identifiable information about you or your operation is subject to a jail term, a fine, or both. This survey is conducted in accordance with the Confidential Information Protection provisions of Title V, Subtitle A, Public Law 107-347 and other applicable Federal laws. For more information on how we protect your information please visit: <https://www.nass.usda.gov/confidentiality>. Response is **voluntary**. We encourage you to refer to your records during the interview.  According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0535-0218. The time required to complete this information collection is estimated to average 60 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. |

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| **BEGINNING TIME** [MILITARY]. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . | 004  \_\_ \_\_ \_\_ \_\_ |
| [*Name, address and partners verified and updated if necessary.*] | |

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| During the screening phase of the Vegetable Chemical Use Survey conducted in June and July, your operation was found to be growing or intending to grow vegetables this year. I now need to verify some of the information collected during the screening survey. |
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|  |
| *Verify operation name and operator on label and/or screener.* |
| * *If no changes, go to Section* ***A****, page 4.* |
| * *If changed, continue to “Change in Operating Status”.* |

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|  | **CHANGE IN OPERATING STATUS** |  |

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| [**ENUMERATOR NOTE:** *Skip this section if there is no change in operation name or operator.*] | | | |
|  | | | |
| 1. Has there been a change in operation name or operator? | | | |
| **NO** - [*Go to Enumerator Note below*.] | | | |
| **YES** - [*Enter code 1, complete name and address information below for new operator,*  *and read Enumerator Note*.]. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . | | | **CODE** |
| 023 |
|  | | | |
|  |  | Operation Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | |
|  |  | Operator Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | |
|  |  | Address \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | |
|  |  | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | |
|  |  | Phone ( ) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | |
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| [**ENUMERATOR NOTE:** | *If the operation on the face page was in business part of the 2020 crop year, complete this questionnaire for the part of the year during which the operation did business, unless the operation has been taken over by a new operator. If the operator has changed midyear, please conduct this interview start to finish with the new operator after reading “Valid Substitution” rules in section 4 of the Interviewer’s Manual.*] |

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| 2. Has the operation printed on this questionnaire been combined or merged with any other farming operations? |
| Yes - [Go to "Conclusion".]  No - [Continue.] |

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|  | **SCREENING** |  |

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| 1. Did this operation have any of the target crops during the 2020 crop year? | | | |
| **YES** - [*Continue*.] | | | |
| **NO** - [*Write notes explaining situation then go to “Conclusion” on back page.*] | | | |
| **Notes:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | |  | |
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|  | | | |
| 2. Are the day-to-day decisions for this operation (*name on label*) made by – [*Check one*.] | | |  |
| one individual? [*Go to Section* ***A***.] | | |  |
| a hired manager? [*Go to Section* ***A***.] | | |  |
| partners? [*Continue with questions 3 and 4.*] | | |  |
| 3. **How many individuals are involved in the day-to-day decisions of this operation?**  [*Enter the number of partners, including the partner named on the label.*  *Identify the other persons in this partnership below, then go to Section* ***A****.*]  (*Partners jointly operate land and share in decision making.* ***Do not include*** *landlords and tenants as partners.*). . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . | | |  |
| **NUMBER** |
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| 4. Please identify the other person(s) in this partnership, then go to Section **A**.  [*Verify partners’ names and make necessary corrections if names have already been entered.*] | | | | | | | | | |
|  | | | | | | | | | |
| **PARTNERS** | **POID**\_\_ \_\_ \_\_ \_\_ \_\_ \_\_ \_\_ \_\_ \_\_ | | | | **PARTNERS** | **POID**\_\_ \_\_ \_\_ \_\_ \_\_ \_\_ \_\_ \_\_ \_\_ | | | |
| PARTNER NAME | | | | | PARTNER NAME | | | | |
| ADDRESS | | | | | ADDRESS | | | | |
| CITY | | STATE | ZIP |  | CITY | | STATE | ZIP |  |
| PHONE NUMBER | | Check if cell phone | | | PHONE NUMBER | | Check if cell phone | | |
| **PARTNERS** | **POID**\_\_ \_\_ \_\_ \_\_ \_\_ \_\_ \_\_ \_\_ \_\_ | | | | **PARTNERS** | **POID**\_\_ \_\_ \_\_ \_\_ \_\_ \_\_ \_\_ \_\_ \_\_ | | | |
| PARTNER NAME | | | | | PARTNER NAME | | | | |
| ADDRESS | | | | | ADDRESS | | | | |
| CITY | | STATE | ZIP |  | CITY | | STATE | ZIP |  |
| PHONE NUMBER | | Check if cell phone | | | PHONE NUMBER | | Check if cell phone | | |

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| **A** | **LAND OPERATED** | **A** |

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| **ACRES OPERATED** | |
| [**Enumerator Action:** *If acreage on the insert is verified as correct, enter code 1 in box 801,*  *then skip to Section* ***B****. If acreage has changed, ask ALL questions*.]. . . . . . . . . . . . . . . . . . . . | 801 |

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| Now I would like to ask about the total acres operated under this land arrangement. | | |
| 1. How many acres does this operation--- | | |
|  | **ACRES** | |
| a. Own?. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . **+** | 901 | **. \_\_\_** |
|  |  | |
| b. Rent or lease from others or use rent free?  (***Exclude*** *land used on an animal unit month (AUM) basis.*). . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . **+** | 902 | **. \_\_\_** |
|  |  | |
| c. Rent to others?. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . **-** | 905 | **. \_\_\_** |
|  |  | |
| 2. [Calculate item 1a + 1b - 1c.] Then the total acres operated are:. . . . . . . . . . . . . . . . . . . . . . . . . . **=** | 900  **. \_\_\_** | |
| a. Does this include the farmstead, all cropland, woodland, pasture land,  wasteland, and government program land?  **YES** - [*Continue*.]  **NO** - [*Make corrections, then continue*.] |  | |
|  |  | |
| **The remaining questions in this survey refer to these [*item 2*] acres.** |  | |
| 3. Of the total acres operated, how many acres are considered cropland, including  land in hay, summer fallow, cropland idle, cropland used for pasture and cropland  in government programs? . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . |  | |
|  | 802 | **.\_\_\_** |
| 4. Of the total acres operated, how many acres are vegetables?  (***Include*** *both target and non-target vegetables planted on the operation.*). . . . . . . . . . . . . . . . . . . . . . . . . . . . |  | |
|  | 803  **. \_\_\_** | |

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|  | **ADA-ESD SCREENING** |  |

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| [**ENUMERATOR NOTE:** *If box is checked, begin with item 1.*  *If box is NOT checked, go to page 6*.]. . . . . . . . . . . . . . | | | |  |  | | | | | | | |
|  | | | | | |  | | | | | | |
| 1.What Pesticide Grower Permit number does this operation use for reporting  chemical applications on these [*Section* ***A****, item 2*] acres to the Arizona  Department of Agriculture – Environmental Services Division [ADA-ESD]? . . . . . . . . . . | | | | | | **PGP 10 NUMBER** | | | | | | |
| 020 |  |  |  |  | |  |
| 2.Is this permit number used to report chemical applications  for acres other than these [*Section* ***A****, item 2*]acres? | | | | | |  | | | | | | |
|  | | | | | | |
| **YES** - [*Continue.*] | | **NO** - [*Go to item 3.*] | | | | | | **OFFICE USE** | | | | |
|  | | | | | | | | 012 | | | | |
| a. What other operation(s) is this permit number used to report for? | | | | | | | |  | | | | |
|  | | | | | | | | | | | | |
|  | Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | Name . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . | | | | | | | |  | |
|  | Address \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | Address . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . | | | | | | | |  | |
|  | Phone ( ) \_\_\_\_\_\_\_\_\_\_\_ Check if cell phone | | Phone ( ) \_\_\_\_\_\_\_\_\_\_\_\_ Check if cell phone | | | | | | | |  | |
|  | | | | | | | | | | | | |
| 3. Does this operation use any **OTHER** Pesticide Grower Permit number  to report chemical applications to ADA–ESD for these [*Section* ***A****, item 2*] acres? | | | | | | | | **OFFICE USE** | | | | |
| **YES** - [*Continue.*] | | **NO** - [*Go to* *Section* ***B****.*] | | | | | | 013 | | | | |
|  | | | | | | **PGP 10 NUMBER** | | | | | | |
| a. What are these PGP numbers?. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . | | | | | | 015 |  |  |  |  | |  |
|  | | | | | | 016 |  |  |  |  | |  |
|  | | | | | | 017 |  |  |  |  | |  |
| b. Do you use any of these ID’s to report chemical applications  for any other operation(s)? | | | | | | 018 |  |  |  |  | |  |
| 019 |  |  |  |  | |  |
| **YES** - [*Continue.*] | | **NO** - [*Go to Section* ***B***.] | | | | | |  | | | | |
| (a) What other operation(s) use this Pesticide Grower Permit for reporting?  [*Identify operation and ID*] | | | | | | | |  | | | | |
|  | | | | | | | | | | | | |
|  | Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | Name . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . | | | | | | | |  | |
|  | Reporting ID \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | Reporting ID . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . | | | | | | | |  | |
|  | Address \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | Address . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . | | | | | | | |  | |
|  | Phone ( ) \_\_\_\_\_\_\_\_\_\_\_\_ Check if cell phone | | Phone ( ) . . . . . . . . . . . . . Check if cell phone | | | | | | | |  | |

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| **B** | **VEGETABLE ACREAGE** | **B** |

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|  | | | | | | | | | | | | | | |
| 1. What **target vegetables** were on these [*Section* ***A****, item 2*] acres during the 2020 crop year? (***Exclude*** *new plantings*  *of vegetables not intended for harvest in* *2020.*) | | | | | | |  | | | | | | | |
| [**ENUMERATOR NOTE:** *If no target acreage is present, write notes*  *and skip to “Conclusion” on back page.*] | | | | | | | **OFFICE USE**  **LINES IN TABLE** | | | | **TABLE**  **001** | 199 |  |  |
|  | | | | | | | | | | | | | | |
|  | **1** | **2** | **3** | | **4** | **5** | |  |  | | | | | |
| **L**  **I**  **N**  **E** |  |  | **How many acres**  **were PLANTED**  **for harvest in the** **2020 crop year?**  (*Include* **2020** *acres*  *which were planted*  *in other years*.) | | **Were any commercial fertilizers applied to this crop?** | **Were any herbicides,**  **insecticides fungicides, etc. applied to this crop?** | |  | **INCLUDE:** | **⦁*****TARGET CROPS ONLY.***  **⦁** *All acreage of TARGET CROPS*  *for processing or fresh market.*  **⦁** *All acreage equal to or greater than*  *one tenth of an acre.*  **⦁** *All bearing acreage of TARGET*  *CROPS for roadside stands, farmer’s*  *markets or U-pick sales.*  **⦁** *Acreage not harvested due to weather,*  *economic or other reasons.*  **⦁** *Crops planted in the fall of* *2019*  *if they were part of the* *2020 crop.*  **⦁** *Double Cropping* | | | | |
|  | **CROP** | **CROP CODE** | **ACRES** | | **[YES = 1]** | **[YES = 1]** | |  |  |
| **01** |  |  | 11 | **.\_\_\_** | 12 | 13 | |  |
| **02** |  |  | 11 | **.\_\_\_** | 12 | 13 | |  |
| **03** |  |  | 11 | **.\_\_\_** | 12 | 13 | |  |
| **04** |  |  | 11 | **.\_\_\_** | 12 | 13 | |  | **EXCLUDE:** |
| **05** |  |  | 11 | **.\_\_\_** | 12 | 13 | |  | **EXCLUDE:** | **⦁*****ALL CROPS GROWN***  ***IN ANOTHER STATE.***  **⦁** *All crops grown in greenhouses,*  *hothouses and* ***home gardens****.*  **⦁** *Plantings of crops not intended*  *for harvest in* *2020.*  **⦁** *New plantings and other plantings*  *which are not yet bearing*  (*asparagus & strawberries*)  **⦁** *All vegetables grown for commercial*  *transplanting.*  **⦁** *All mushrooms, potatoes, dry beans,*  *sweet potatoes.*  **⦁** *All vegetable acreage grown*  *for seed only.*  **⦁** *All vegetable acres grown by*  *institutional, experimental, research*  *and university farms.*  **⦁** *Non-target vegetables.* | | | | |
| **06** |  |  | 11 | **.\_\_\_** | 12 | 13 | |  |  |
| **07** |  |  | 11 | **.\_\_\_** | 12 | 13 | |  |
| **08** |  |  | 11 | **.\_\_\_** | 12 | 13 | |  |
| **09** |  |  | 11 | **.\_\_\_** | 12 | 13 | |  |
| **10** |  |  | 11 | **.\_\_\_** | 12 | 13 | |  |
| **11** |  |  | 11 | **.\_\_\_** | 12 | 13 | |  |
| **12** |  |  | 11 | **.\_\_\_** | 12 | 13 | |  |
| **13** |  |  | 11 | **.\_\_\_** | 12 | 13 | |  |
| **14** |  |  | 11 | **.\_\_\_** | 12 | 13 | |  |
| **15** |  |  | 11 | **.\_\_\_** | 12 | 13 | |  |
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| **ARIZONA – CROP CODES** | |  | **NOTES:** |  |
| 709 | **CANTALOUPES** |  |  | |
|  | **LETTUCE** |  |  | |
| 725 | HEAD |  |  | |
| 728 | OTHER |  |  | |
| 759 | **SPINACH** |  |  | |

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| **D** | **PESTICIDE APPLICATIONS** | **D** |

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| [**ENUMERATOR ACTION:** *If pesticides were reported in Section B, column 5, continue. Otherwise, skip to Section E.*] | | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | |
| 1. Now I need to get complete information on all of the chemicals applied, including applications made by you and/or by custom applicators during the 2020 crop year to each of the **target** **VEGETABLE** **crops** you grew. **Let’s start with the first application to your** [*crop*] **since the 2019** **crop year harvest.** [*Complete the table for all chemical applications to the target* *VEGETABLE crops*.  *Use supplemental tables if necessary.* ](***Include*** *herbicides, insecticides, nematicides, miticides, fungicides, chemical thinners, growth regulators, microbial agents, pheromones, rodenticides, and soil fumigants.* ***Exclude*** *seed treatments, foliar applications of nutrients, and applications made to* *VEGETABLE after harvest.*) | | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | |
|  | | | | | | | | **OFFICE USE**  **LINES IN TABLE** | | | | | **TABLE**  **001** | | 399 | |  |
|  | | | | | | | | | | | | | | | | | |
|  | | |  | 1 | | | 2 | | 3 | | | 4 | | | | 5 | |
| **CHEMICAL**  **PRODUCT NAME** | | | **L**  **I**  **N**  **E** | **CROP** | | | **CROP**  **CODE** | | **What products**  **were applied**  **to the** [*crop*]?  [*Enter product code.*] | | | **Was this**  **product**  **bought in**  **liquid or**  **dry form?**  [*Enter L or D.*] | | | | **Was this**  **part of a**  **tank mix?**  [*If tank mix, enter line number*  *of first product*  *in mix.*] | |
|  | | | **01** |  | | |  | | 61 | | |  | | | | 63 | |
|  | | | **02** |  | | |  | | 61 | | |  | | | | 63 | |
|  | | | **03** |  | | |  | | 61 | | |  | | | | 63 | |
|  | | | **04** |  | | |  | | 61 | | |  | | | | 63 | |
|  | | | **05** |  | | |  | | 61 | | |  | | | | 63 | |
|  | | | **06** |  | | |  | | 61 | | |  | | | | 63 | |
|  | | | **07** |  | | |  | | 61 | | |  | | | | 63 | |
|  | | | **08** |  | | |  | | 61 | | |  | | | | 63 | |
|  | | | **09** |  | | |  | | 61 | | |  | | | | 63 | |
|  | | | **10** |  | | |  | | 61 | | |  | | | | 63 | |
|  | | | **11** |  | | |  | | 61 | | |  | | | | 63 | |
|  | | | **12** |  | | |  | | 61 | | |  | | | | 63 | |
|  | | | **13** |  | | |  | | 61 | | |  | | | | 63 | |
|  | | | **14** |  | | |  | | 61 | | |  | | | | 63 | |
|  | | | **15** |  | | |  | | 61 | | |  | | | | 63 | |
| [*For pesticides not listed in Respondent Booklet, specify*---] | | | | | | | | | | | | | | | | | |
| **Line No.** |  | **Pesticide Type**  (*Herbicide, Insecticide, Fungicide, etc*.) | | |  | **Trade Name**  **and Formulation** | | | |  | **Form Purchased**  (*Liquid or Dry)* | | |  | **EPA Reg. No.** | | |
|  |  |  | | |  |  | | | |  |  | | |  |  | | |
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| **D** | **PESTICIDE APPLICATIONS** | **D** |

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|  | | **CODES FOR COLUMN 8** | | | | | | | | | | | | | | | |  |
|  | | 1 POUNDS | | | | 14 PINTS | | | | 30 GRAMS | | | | 46 SPIRALS | | | |  |
|  | | 12 GALLONS | | | | 15 OUNCES, LIQUID | | | | 40 KILOGRAMS | | | | 47 PACKETS | | | |  |
|  | | 13 QUARTS | | | | 28 OUNCES, DRY | | | | 41 LITERS | | | | 50 OTHER (*Specify*\_\_\_\_\_\_\_\_\_\_\_\_\_) | | | |  |
|  | |  | | | | | | | |  | | | | | | | |  |
|  | | | | | | | | | | | | | | | | | | |
| **L**  **I**  **N**  **E** | 6 **OR** 7 | | | | | | | | 8 | | 9 | | | | | | 10 | |
| **How much**  **was applied**  **per acre per**  **application?** | | | | **What was the**  **total amount**  **applied per**  **application?** | | | | [*Enter unit code*  *from above.*]  **CODE** | | **How many acres**  **were treated**  **with this product?**  **ACRES** | | | | | | **How many times**  **was it applied?**  **NUMBER** | |
| **01** | 65  . \_\_\_ \_\_\_ | | | | 73  . \_\_\_ \_\_\_ | | | | 74 | | 77  . \_\_\_ | | | | | | 79 | |
| **02** | 65  . \_\_\_ \_\_\_ | | | | 73  . \_\_\_ \_\_\_ | | | | 74 | | 77  . \_\_\_ | | | | | | 79 | |
| **03** | 65  . \_\_\_ \_\_\_ | | | | 73  . \_\_\_ \_\_\_ | | | | 74 | | 77  . \_\_\_ | | | | | | 79 | |
| **04** | 65  . \_\_\_ \_\_\_ | | | | 73  . \_\_\_ \_\_\_ | | | | 74 | | 77  . \_\_\_ | | | | | | 79 | |
| **05** | 65  . \_\_\_ \_\_\_ | | | | 73  . \_\_\_ \_\_\_ | | | | 74 | | 77  . \_\_\_ | | | | | | 79 | |
| **06** | 65  . \_\_\_ \_\_\_ | | | | 73  . \_\_\_ \_\_\_ | | | | 74 | | 77  . \_\_\_ | | | | | | 79 | |
| **07** | 65  . \_\_\_ \_\_\_ | | | | 73  . \_\_\_ \_\_\_ | | | | 74 | | 77  . \_\_\_ | | | | | | 79 | |
| **08** | 65  . \_\_\_ \_\_\_ | | | | 73  . \_\_\_ \_\_\_ | | | | 74 | | 77  . \_\_\_ | | | | | | 79 | |
| **09** | 65  . \_\_\_ \_\_\_ | | | | 73  . \_\_\_ \_\_\_ | | | | 74 | | 77  . \_\_\_ | | | | | | 79 | |
| **10** | 65  . \_\_\_ \_\_\_ | | | | 73  . \_\_\_ \_\_\_ | | | | 74 | | 77  . \_\_\_ | | | | | | 79 | |
| **11** | 65  . \_\_\_ \_\_\_ | | | | 73  . \_\_\_ \_\_\_ | | | | 74 | | 77  . \_\_\_ | | | | | | 79 | |
| **12** | 65  . \_\_\_ \_\_\_ | | | | 73  . \_\_\_ \_\_\_ | | | | 74 | | 77  . \_\_\_ | | | | | | 79 | |
| **13** | 65  . \_\_\_ \_\_\_ | | | | 73  . \_\_\_ \_\_\_ | | | | 74 | | 77  . \_\_\_ | | | | | | 79 | |
| **14** | 65  . \_\_\_ \_\_\_ | | | | 73  . \_\_\_ \_\_\_ | | | | 74 | | 77  . \_\_\_ | | | | | | 79 | |
| **15** | 65  . \_\_\_ \_\_\_ | | | | 73  . \_\_\_ \_\_\_ | | | | 74 | | 77  . \_\_\_ | | | | | | 79 | |
| [*For pesticides not listed in Respondent Booklet, specify*---] | | | | | | | | | | | | | | | | | | |
| **Line No.** | | |  | **Pesticide Type**  (*Herbicide, Insecticide, Fungicide, etc*.) | | |  | **Tradename**  **and Formulation** | | | |  | **Form Purchased**  (*Liquid or Dry)* | |  | **EPA Reg. No.** | | |
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| **D** | **PESTICIDE APPLICATIONS** | **D** |

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|  | | |  | 1 | | | | 2 | | 3 | | | | | 4 | | | | 5 | |
| **CHEMICAL**  **PRODUCT NAME** | | | **L**  **I**  **N**  **E** | **CROP** | | | | **CROP**  **CODE** | | **What products**  **were applied**  **to the** [*crop*]?  [*Enter product code.*] | | | | | **Was this**  **product**  **bought in**  **liquid or**  **dry form?**  [*Enter L or D.*] | | | | **Was this**  **part of a**  **tank mix?**  [*If tank mix, enter line number*  *of first product*  *in mix.*] | |
|  | | | **16** |  | | | |  | | 61 | | | | |  | | | | 63 | |
|  | | | **17** |  | | | |  | | 61 | | | | |  | | | | 63 | |
|  | | | **18** |  | | | |  | | 61 | | | | |  | | | | 63 | |
|  | | | **19** |  | | | |  | | 61 | | | | |  | | | | 63 | |
|  | | | **20** |  | | | |  | | 61 | | | | |  | | | | 63 | |
|  | | | **21** |  | | | |  | | 61 | | | | |  | | | | 63 | |
|  | | | **22** |  | | | |  | | 61 | | | | |  | | | | 63 | |
|  | | | **23** |  | | | |  | | 61 | | | | |  | | | | 63 | |
|  | | | **24** |  | | | |  | | 61 | | | | |  | | | | 63 | |
|  | | | **25** |  | | | |  | | 61 | | | | |  | | | | 63 | |
|  | | | **26** |  | | | |  | | 61 | | | | |  | | | | 63 | |
|  | | | **27** |  | | | |  | | 61 | | | | |  | | | | 63 | |
|  | | | **28** |  | | | |  | | 61 | | | | |  | | | | 63 | |
|  | | | **29** |  | | | |  | | 61 | | | | |  | | | | 63 | |
|  | | | **30** |  | | | |  | | 61 | | | | |  | | | | 63 | |
|  | | | **31** |  | | | |  | | 61 | | | | |  | | | | 63 | |
|  | | | **32** |  | | | |  | | 61 | | | | |  | | | | 63 | |
|  | | | **33** |  | | | |  | | 61 | | | | |  | | | | 63 | |
| [*For pesticides not listed in Respondent Booklet, specify*---] | | | | | | | | | | | | | | | | | | | | |
| **Line No.** |  | **Pesticide Type**  (*Herbicide, Insecticide, Fungicide, etc*.) | | |  | **Trade Name**  **and Formulation** | | | | | |  | **Form Purchased**  (*Liquid or Dry)* | | | |  | **EPA Reg. No.** | | |
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| **D** | **PESTICIDE APPLICATIONS** | **D** |

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|  | | **CODES FOR COLUMN 8** | | | | | | | | | | | | | | | |  |
|  | | 1 POUNDS | | | | 14 PINTS | | | | 30 GRAMS | | | | 46 SPIRALS | | | |  |
|  | | 12 GALLONS | | | | 15 OUNCES, LIQUID | | | | 40 KILOGRAMS | | | | 47 PACKETS | | | |  |
|  | | 13 QUARTS | | | | 28 OUNCES, DRY | | | | 41 LITERS | | | | 50 OTHER (*Specify*\_\_\_\_\_\_\_\_\_\_\_\_\_) | | | |  |
|  | |  | | | | | | | |  | | | | | | | |  |
|  | | | | | | | | | | | | | | | | | | |
| **L**  **I**  **N**  **E** | 6  **OR** 7 | | | | | | | 8 | | | 9 | | | | 10 | | | |
| **How much**  **was applied**  **per acre per**  **application?** | | | | **What was the**  **total amount**  **applied per**  **application?** | | | [*Enter unit code*  *from above.*]  **CODE** | | | **How many acres**  **were treated**  **with this product?**  **ACRES** | | | | **How many times**  **was it applied?**  **NUMBER** | | | |
| **16** | 65  . \_\_\_ \_\_\_ | | | | 73  . \_\_\_ \_\_\_ | | | 74 | | | 77  . \_\_\_ | | | | 79 | | | |
| **17** | 65  . \_\_\_ \_\_\_ | | | | 73  . \_\_\_ \_\_\_ | | | 74 | | | 77  . \_\_\_ | | | | 79 | | | |
| **18** | 65  . \_\_\_ \_\_\_ | | | | 73  . \_\_\_ \_\_\_ | | | 74 | | | 77  . \_\_\_ | | | | 79 | | | |
| **19** | 65  . \_\_\_ \_\_\_ | | | | 73  . \_\_\_ \_\_\_ | | | 74 | | | 77  . \_\_\_ | | | | 79 | | | |
| **20** | 65  . \_\_\_ \_\_\_ | | | | 73  . \_\_\_ \_\_\_ | | | 74 | | | 77  . \_\_\_ | | | | 79 | | | |
| **21** | 65  . \_\_\_ \_\_\_ | | | | 73  . \_\_\_ \_\_\_ | | | 74 | | | 77  . \_\_\_ | | | | 79 | | | |
| **22** | 65  . \_\_\_ \_\_\_ | | | | 73  . \_\_\_ \_\_\_ | | | 74 | | | 77  . \_\_\_ | | | | 79 | | | |
| **23** | 65  . \_\_\_ \_\_\_ | | | | 73  . \_\_\_ \_\_\_ | | | 74 | | | 77  . \_\_\_ | | | | 79 | | | |
| **24** | 65  . \_\_\_ \_\_\_ | | | | 73  . \_\_\_ \_\_\_ | | | 74 | | | 77  . \_\_\_ | | | | 79 | | | |
| **25** | 65  . \_\_\_ \_\_\_ | | | | 73  . \_\_\_ \_\_\_ | | | 74 | | | 77  . \_\_\_ | | | | 79 | | | |
| **26** | 65  . \_\_\_ \_\_\_ | | | | 73  . \_\_\_ \_\_\_ | | | 74 | | | 77  . \_\_\_ | | | | 79 | | | |
| **27** | 65  . \_\_\_ \_\_\_ | | | | 73  . \_\_\_ \_\_\_ | | | 74 | | | 77  . \_\_\_ | | | | 79 | | | |
| **28** | 65  . \_\_\_ \_\_\_ | | | | 73  . \_\_\_ \_\_\_ | | | 74 | | | 77  . \_\_\_ | | | | 79 | | | |
| **29** | 65  . \_\_\_ \_\_\_ | | | | 73  . \_\_\_ \_\_\_ | | | 74 | | | 77  . \_\_\_ | | | | 79 | | | |
| **30** | 65  . \_\_\_ \_\_\_ | | | | 73  . \_\_\_ \_\_\_ | | | 74 | | | 77  . \_\_\_ | | | | 79 | | | |
| **31** | 65  . \_\_\_ \_\_\_ | | | | 73  . \_\_\_ \_\_\_ | | | 74 | | | 77  . \_\_\_ | | | | 79 | | | |
| **32** | 65  . \_\_\_ \_\_\_ | | | | 73  . \_\_\_ \_\_\_ | | | 74 | | | 77  . \_\_\_ | | | | 79 | | | |
| **33** | 65  . \_\_\_ \_\_\_ | | | | 73  . \_\_\_ \_\_\_ | | | 74 | | | 77  . \_\_\_ | | | | 79 | | | |
| [*For pesticides not listed in Respondent Booklet, specify*---] | | | | | | | | | | | | | | | | | | |
| **Line No.** | | |  | **Pesticide Type**  (*Herbicides, Insecticides, Fungicides, etc*.) | | |  | | **Trade name**  **and Formulation** | | |  | **Form Purchased**  (*Liquid or Dry)* | | |  | **EPA Reg. No.** | |
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| **E** | **PEST MANAGEMENT PRACTICES** | **E** |

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| Now I have some questions about pest management practices you may have used on any of the **total vegetable acres** on this operation. (***Include*** *both target and non-target vegetable crops grown.*)  **By pests, we mean insects, weeds, and diseases.** |  |  |  |
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| **[Enumerator Action: *Were PESTICIDE APPLICATIONS reported in Section B, column 5 on page 6*?]** | | | |
|  | | | |
| **YES** - [*Continue*.] | **No** - [*Go to item 4*.] | | |
|  | | | |
| 1. Was weather data used to assist in determining either the need or when to make pesticide applications?. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . | |  | **CODE** |
| **YES = 1** | 600 |
|  | |  |  |
| 2. Were any biological pesticides such as Bt (*Bacillus thuringiensis*),  insect growth regulators (*Courier, intrepid, etc*.),neem or other natural/biological based products sprayed or applied to manage pests?. . . . . . . . . . . . . . . . . | |  |  |
| **YES = 1** | 601 |
|  | |  |  |
| 3. Were pesticides with different mechanisms of action rotated or tank  mixed for the primary purpose of keeping pests from becoming  resistant to pesticides?. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . | |  |  |
| **YES = 1** | 602 |
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| 4. In 2020, how were your vegetable acres primarily scouted for insects, weeds, diseases and/or  beneficial organisms?. . . . . . . . . | 1 By deliberately going to the vegetable acres specifically  for scouting activities. (*Enter code 1 and go to item 5*.)  2 By conducting general observations while performing  routine tasks. (*Enter code 2 and go to item 7*.)  3 The vegetable acres were not scouted.  (*Enter code 3 and go to item 10*.) | . . . . . . . . . . . . . |  |
| 608 |
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| 5. Was an established scouting process used (*systemic sampling,*  *recording counts, insect traps, etc*.) on any vegetable acres?. . . . . . . . . . . . . . . . . . . . . . . . . |  |  |
| **YES = 1** | 609 |
|  | |  |
| 6. Was scouting for pests done on these vegetable acres due to--- | |  |
| a. a pest advisory warning?. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . | **YES = 1** | 610 |
| b. a pest development model?. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . | **YES = 1** | 611 |

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| 1 | | 2 |
| 7. Were your vegetable acres scouted for –-- | | [*If column 1 is* ***YES****, ask*---]  **Who did the majority**  **of the scouting for** [*column 1*]—  1 Operator, partner or family member  2 An employee  3 Farm supply or chemical dealer  4 Independent crop consultant or commercial scout  5 Processor  6 Other (*specify*: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ ) |
|  | **YES = 1** | **CODE** |
| a. weeds?. . . . . . . . . . . . . . . . . . . . . . . . . . | 612 | 614 |
| b. insects and mites?. . . . . . . . . . . . . . . . . | 615 | 617 |
| c. disease?. . . . . . . . . . . . . . . . . . . . . . . . . | 618 | 620 |

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| **E** | **PEST MANAGEMENT PRACTICES** | **E** |

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| 8. Were written or electronic records kept to track the activity or  numbers of weeds, insects or diseases?. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . | | | | | | | | |  | **CODE** | |
| **YES = 1** | 623 | |
| 9. Was scouting data compared to published information on infestation thresholds to determine when to take measures to manage pests?. . . . . . . . . . . . . . . . . . . . . | | | | | | | | |  |  | |
| **YES = 1** | 624 | |
|  | | | | | | | | |  |  | |
| 10. Was field mapping data used for making pest management decisions?. . . . . . . . . . . . . . . . . | | | | | | | | | **YES = 1** | 625 | |
| 11. Were the services of a diagnostic laboratory used for pest identification or  soil or plant tissue pest analysis?. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . | | | | | | | | |  |  | |
| **YES = 1** | 626 | |
|  | | | | | | | | |  |  | |
| 12. Were crop residues plowed down or removed to manage pests?. . . . . . . . . . . . . . . . . . . . . . | | | | | | | | | **YES = 1** | 627 | |
|  | | | | | | | | |  |  | |
| 13. Were crops rotated during the past three years for the purpose of managing pests?. . . . . . . | | | | | | | | | **YES = 1** | 628 | |
| 14. Were ground covers, mulches, or other physical barriers maintained to manage pest problems?. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . | | | | | | | | |  |  | |
| **YES = 1** | 629 | |
|  | | | | | | | | |  |  | |
| 15. Was a crop variety chosen because it had resistance to a specific pest?. . . . . . . . . . . . . . . . | | | | | | | | | **YES = 1** | 630 | |
|  | | | | | | | | |  |  | |
| 16. Was no-till or minimum till used to manage pests?. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . | | | | | | | | | **YES = 1** | 631 | |
|  | | | | | | | | |  |  | |
| 17. Were planting locations planned to avoid infestation of pests?. . . . . . . . . . . . . . . . . . . . . . . . . | | | | | | | | | **YES = 1** | 632 | |
|  | | | | | | | | |  |  | |
| 18. Were planting or harvesting dates adjusted to manage pests?. . . . . . . . . . . . . . . . . . . . . . . . | | | | | | | | | **YES = 1** | 633 | |
|  | | | | | | | | |  |  | |
| 19. Were row spacing or plant density adjusted to manage pests?. . . . . . . . . . . . . . . . . . . . . . . . | | | | | | | | | **YES = 1** | 634 | |
|  | | | | | | | | |  |  | |
| 20. Was a trap crop grown to help manage insects?. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . | | | | | | | | | **YES = 1** | 635 | |
| 21. Were any beneficial organisms (*insects, nematodes, fungi*) applied or released to manage pests?. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . | | | | | | | | |  |  | |
| **YES = 1** | 636 | |
| 22. Were floral lures, attractants, repellants, pheromone traps or other biological pest controls used on any vegetable acres?. . . . . . . . . . . . . . . . . . . . . . . . . . | | | | | | | | |  |  | |
| **YES = 1** | 637 | |
|  | | | | | | | | |  |  | |
| 23. Were any vegetable acres cultivated for weed control during the growing season?. . . . . . . . . | | | | | | | | | **YES = 1** | 640 | |
| 24. Were field edges, lanes, ditches, roadways or fence lines chopped, mowed, plowed, or burned to manage pests on any vegetable acres?. . . . . . . . . . . . . . . . . . | | | | | | | | |  |  | |
| **YES = 1** | 642 | |
| 25. Were equipment and implements cleaned after completing field work to reduce the spread of pests?. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . | | | | | | | | |  |  | |
| **YES = 1** | 643 | |
|  | | | | | | | | |  |  | |
| 26. Were any vegetable acres irrigated for the 2020 crops?. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . | | | | | | | | | **YES = 1** | 644 | |
| a. [*If item 26 = YES, ask*---]  Were water management practices (excluding chemigation) such as irrigation scheduling, controlled drainage, or treatment of retention water used to manage pests?. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . | | | | | | | | |  |  | |
| **YES = 1** | 645 | |
|  | | | | | | | | | | | |
|  | **COMPLETION CODE for FERTILIZER APPLICATIONS** | |  | **COMPLETION CODE for PESTICIDE APPLICATIONS** | |  | **COMPLETION CODE for**  **PEST MANAGEMENT PRACTICES** | | | |  |
|  | 1 Incomp/R  3 Valid Zero | 200 |  | 1 Incomp/R  3 Valid Zero | 300 |  | 1 Incomp/R | 500 | | |  |

**E-1 PEST MANAGEMENT PRACTICES E-1**

**Enumerator Note:** For the remaining questions, primary target crop is defined as the largest target crop by acres planted for harvest in 2020, as reported in Section B, Question 1.

The primary target crop on this operation is: crop / crop code.

1. Were any of the following pesticide spraying practices or activities used on this operation for [insert primary target crop] in 2020? Pesticides include insecticides, fungicides, herbicides, bactericides, nematicides, and plant growth regulators (PGR).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | | 1 | 2 | 3 | 4 |
| Pesticide Spraying Practice or Activity | | Was this used in 2020? | Was it specifically used to keep pesticide application(s) on target (i.e., reduce pesticide drift)? | [Complete column for every Yes in Column 1.] Considering labor, training, capital expenditures, and other costs, how easy or difficult was it to implement this practice or activity? | [Complete column for every No in Column 1.]  Why was this practice or activity not used?  List all that apply. |
|  | | 1 Yes  3 No  99 Don't  Know | 1 Yes  3 No  99 Don't Know | 1. Very Easy 2. Somewhat Easy 3. Somewhat Difficult 4. Very Difficult | 1. Cost of labor/training 2. Cost of associated equipment/products 3. Incompatible with current production practices (e.g., topography, equipment limitations) 4. General time management issue/too busy 5. Unfamiliar with activity or practice 6. Other, specify: |
| a. Altering spray time(s) depending on weather conditions (e.g., wind speed, wind direction) | | 5170 | 5171 | 5172 | 5173  5174  Specify: |
| b. Calibrate sprayer before the season | | 5190 | 5191 | 5192 | 5193  5194  Specify: |
| c. Calibrate sprayer during the season | | 5195 | 5196 | 5197 | 5198  5199  Specify: |
| d. Manually altering sprayer settings to improve the spray precision (e.g., altering spray pressure, ground speed, and/or boom height) | | 5200 | 5201 | 5202 | 5203  5204  Specify: |
| e. Electronic eye/infra-red | | 5165 | 5166 | 5167 | 5168 |
| or other sensor-based | |  |  |  | 5169 |
| technology (e.g., sonar) | |  |  |  | Specify: |
| f. Other technologies to improve the spray precision (e.g., on/off nozzle spray technology, GPS technology, variable-rate technology) | | 5205 | 5206 | 5207 | 5208  5209  Specify: |
| g. Pulse Width Modulation (PWM) (e.g., Aim Command, Raven's Hawk Eye, John Deere's Exact Apply) | | 5215 | 5216 | 5217 | 5218  5219  Specify: |
| h. | Other - Specify: | 5220 | 5221 | 5222 | 5223 |
|  | 5225 |  |  |  | 5224 |
|  |  |  |  |  | Specify: |

2. Which of the following spraying practices resulted in a sprayer re-calibration for [insert primary target crop] in 2020? Check all that apply.

5261 Computer calibration alert system

5262 Change in product being applied

5263 Observed change in spray pattern (e.g., from worn nozzles)

5264 Scheduled calibration (e.g., daily, monthly, annually)

5265 When moving to a different block or crop

5266 Other, specify: 5268 5267 None of the above

3. Excluding application of herbicides, which of the following methods of spraying did this operation use to apply insecticide/ fungicide/bactericides/nematicides/plant growth regulator for [insert primary target crop] in 2020? Check all that apply.

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| 5405 | Ground boom sprayer(s) |
| 5406 | Aerial application(s) |
| 5407 | Spot treatments (e.g., backpack sprayers) |
| 5410 | Chemigation (such as through drip irrigation or micro-sprinklers) |
| xxxx | Air blast / Air-assisted sprayer(s) |
| 5413 | Other, specify: 5400 |
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4. Pre-emergence pesticide applications are pesticides that are applied both prior to planting and/or before the emergence of the vegetables for early-season pest management. Pesticides include insecticides, fungicides, herbicides, bactericides, nematicides, and plant growth regulators (PGR). Did this operation make any pre-emergence pesticide applications using air blast sprayer and/or ground boom sprayers for [insert primary target crop] in 2020?

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Yes, made pre-emergence pesticide applications using air blast / air-assisted sprayer(s) - Complete Column 1 Yes, made pre-emergence pesticide applications using ground boom sprayers - Complete Column 2

No, did not make pre-emergence pesticide applications - Go to item 5

* 1. What pesticide type(s) were used in this [insert

systems type] pre-emergence in 2020? Check all that apply.

* 1. What is the typical spray volume, in Gallons per Acre (GPA), for pesticide applications pre-emergence in 2020? Select one item only.
  2. What is the typical operating pressure, in PSI, for pesticide applications pre-emergence in 2020? Select one item only.
  3. What is the typical nozzle used when spraying pesticide applications pre-emergence in 2020? Select one item only.
  4. What is the typical ground speed when spraying pesticide applications pre-emergence in 2020? Select one item only.
  5. What is the typical boom height above the ground when spraying pesticide applications pre-emergence in 2020? Select one item only.

1

For Air blast / Air-assisted sprayer(s)

systems

5420 Insecticides

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5421 Fungicides

5422 Herbicides

5423 Bactericides

xxxx Nematicides

5424 Plant Growth Regulators (PGRs)

5425 Other: specify: 5426

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1 Less than 25 GPA

2 25 to <50 GPA

3 50 to <75 GPA

4 75 to <100 GPA

5 100 to <200 GPA

6 200 or greater GPA

99 Don't Know

5436

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1 Less than 50 PSI

2 50 to <75 PSI

3 75 to <100 PSI

4 100 to <150 PSI

5 150 to <200 PSI

6 200 or greater PSI

99 Don't Know

1 Hollow Cone

2 Full Cone

3 Disc/Core Nozzle

4 Flat fan

5 Air-inclusion (AI) Air-induction

6 Other, specify: xxxx\_\_\_\_\_\_\_\_\_\_\_\_\_

99 Don’t Know

5440

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1 Less than 1 mph

2 1 to <2 mph

3 2 to <3 mph

4 3 to <4 mph

5 4 to <5 mph

6 5 mph or greater

99 Don't Know

2

1 <24 inches

2 24 to <36 inches

3 36 inches or greater

4 Don’t know

For Ground Boom systems

5427 Insecticides

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5428 Fungicides

5429 Herbicides

5430 Bactericides

Xxxx Nematicides

5431 Plant Growth Regulators (PGRs)

5432 Other: specify: 5433

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1 Less than 5 GPA

2 5 to <7.5 GPA

3 7.5 to <10 GPA

4 10 to <15 GPA

5 15 to <20 GPA

6 20 to <25 GPA

7 25 or greater GPA

99 Don't Know

5437

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1 Less than 10 PSI

2 10 to <20 PSI

3 20 to <30 PSI

4 30 to <40 PSI

5 40 to <50 PSI

6 50 to <60 PSI

7 60 to <70 PSI

8 70 to <80 PSI

9 80 to <90 PSI

10 90 PSI or greater

99 Don't know

5438

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1 Hollow Cone

2 Full Cone

3 Disc/Core Nozzle

4 Flat fan

5 Air-inclusion (Al)/Air-induction/Venturi

6 Other, specify: 5439

99 Don't Know

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1 Less than 1 mph

2 1 to <2 mph

3 2 to <3 mph

4 3 to <4 mph

5 4 to <5 mph

6 5 to <6 mph

7 6 to <7 mph

8 7 mph or greater

99 Don't know

5442

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1 <24 inches

2 24 to <36 inches

3 36 inches or greater

99 Don't know

19

# E-1 PEST MANAGEMENT PRACTICES E-1

* 1. What is the typical target droplet size spectrum for pesticide applications pre-emergence in 2020? Select one item only.
  2. For which of the following reasons did this operation change the airspeed (in revolutions per minute, or RPM) pre-emergence in 2020? Check all that apply.

For Air blast / Air-as1sisted sprayer(s) systems

5443

1 Less than 106 microns (Extremely Fine or Very Fine)

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2 106-235 microns (Fine)

3 236-340 microns (Medium)

4 341-403 microns (Coarse)

5 404-502 microns (Very Coarse)

6 503-665 microns (Extremely Coarse)

7 Greater than 665 microns (Ultra Coarse)

99 Don't Know

5445 Crop stage

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5446 Change of product(s)

5447 Use of specialty Plant Growth Regulator (PGR) applications (e.g., for thinning or ~~fruit~~ finish)

5448 Moving between blocks

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5449 Wind speed or wind direction

5450 Other, specify:5451

5452 Never

2

For Ground Boom systems

5444

1 Less than 106 microns (Extremely Fine or Very Fine)

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2 106-235 microns (Fine)

3 236-340 microns (Medium)

4 341-403 microns (Coarse)

5 404-502 microns (Very Coarse)

6 503-665 microns (Extremely Coarse)

7 Greater than 665 microns (Ultra Coarse)

99 Don't Know

* 1. Which of the following practices were used pre-emergence in 2020? Check all that apply.

5453 Drift reducing adjuvant(s)

5454 Drift reducing nozzle(s)

5454 Shielded sprayers

Xxxx Don’t know

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Drift reducing adjuvant(s) Drift reducing nozzle(s) Shielded sprayers

Don't know

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5. Post-emergence pesticide applications are made to control pests that occur after emergence of the vegetables.

Pesticides include insecticides, fungicides, herbicides, bactericides, nematicides, and plant growth regulators (PGR). Did this operation make any post-emergence pesticide applications using air blast sprayers and/or ground boom sprayers for [insert primary target crop] in 2020?

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For vegetables, copy the response options into this column for air-blast too.

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5242

Yes, made post-emergence pesticide applications using air-assisted sprayer(s) - Complete Column 1 Yes, made post-emergence pesticide applications using ground boom sprayers - Complete Column 2 No, did not make post-emergence pesticide applications - Go to item 6

For Air blast / systems

1

Air-assisted

sprayer(s)

2

For Ground Boom systems

A. What pesticide type(s) were used in this [insert

systems type] post-emergence in 2020? Check all that apply.

B. What is the typical spray volume, in Gallons per Acre (GPA), for pesticide applications post-emergence in 2020? Select one item only.

C. What is the typical operating pressure, in PSI, for pesticide applications post-emergence in 2020? Select one item only.

D. What is the typical nozzle used when spraying herbicide applications post-emergence in 2020? Select one item only.

E. What is the typical ground speed when spraying pesticide applications post emergence in 2020? Select one item only.

F. What is the typical boom height above the ground or plant canopy when spraying herbicide applications post-emergence in 2020? Select one item only.

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Insecticides Fungicides Herbicides Bactericides

Nematicides

Plant Growth Regulators (PGRs) Other: specify: 5426

Less than 25 GPA 25 to <50 GPA

50 to <75 GPA

75 to <100 GPA

100 to <200 GPA

200 or greater GPA Don't Know

Less than 50 PSI 50 to <75 PSI

75 to <100 PSI

100 to <150 PSI

150 to <200 PSI

200 or greater PSI Don't Know

Hollow Cone

Full Cone

Disc/Core Nozzle

Flat fan

Air-inclusion (Al)/Air-induction/Venture

Other, specify: xxxx\_\_\_\_\_\_\_\_\_

Don’t Know

Less than 1 mph 1 to <2 mph

1. to <3 mph
2. to <4 mph
3. to <5 mph
4. mph or greater Don't Know

5427

< 24 inches

24 to <36 inches

36 inches or greater

Don’t know

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Insecticides Fungicides Herbicides Bactericides

Nematicides

Plant Growth Regulators (PGRs) Other: specify: 5433

Less than 5 GPA 5 to <7.5 GPA

7.5 to <10 GPA 10 to <15 GPA 15 to <20 GPA 20 to <25 GPA

25 or greater GPA Don't Know

Less than 10 PSI 10 to <20 PSI

20 to <30 PSI

30 to <40 PSI

40 to <50 PSI

50 to <60 PSI

60 to <70 PSI

70 to <80 PSI

80 to <90 PSI

90 PSI or greater Don't know

Hollow Cone Full Cone

Disc/Core Nozzle Flat fan

Air-inclusion (Al)/Air-induction/Venturi Other, specify: 5439 Don't Know

Less than 1 mph 1 to <2 mph

1. to <3 mph
2. to <4 mph
3. to <5 mph
4. to <6 mph
5. to <7 mph
6. mph or greater Don't know

<24 inches

24 to <36 inches

36 inches or greater Don't know

For Air Blast / Air-as1sisted sprayer(s)

systems

5443

2

For Ground Boom systems

5444

G. What is the typical target droplet size spectrum for pesticide applications post-emergence in 2020? Select one item only.

H. For which of the following reasons did this operation change the airspeed (in revolutions per minute, or RPM) post-emergence in 2020? Check all that apply.

* 1. Which of the following practices were used post-emergence in 2020? Check all that apply.

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5453 Drift reducing adjuvant(s)

5454 Drift reducing nozzle(s)

5455 Shielded sprayers

xxxx Don’t Know

Less than 106 microns (Extremely Fine or Very Fine)

106-235 microns (Fine)

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236-340 microns (Medium)

341-403 microns (Coarse)

404-502 microns (Very Coarse) 503-665 microns (Extremely Coarse)

Greater than 665 microns (Ultra Coarse)

Don't Know

Crop stage

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Change of product(s)

Use of specialty Plant Growth Regulator (PGR) applications (e.g., for thinning or ~~fruit~~ finish) Moving between blocks

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Wind speed or wind direction Other, specify:5451 Never

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Less than 106 microns (Extremely Fine or Very Fine)

106-235 microns (Fine)

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236-340 microns (Medium)

341-403 microns (Coarse)

404-502 microns (Very Coarse) 503-665 microns (Extremely Coarse)

Greater than 665 microns (Ultra Coarse)

Don't Know

Drift reducing adjuvant(s) Drift reducing nozzle(s) Shielded sprayers

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Don't know

6.Now we are going to ask a few questions about spray equipment maintenance in 2020.

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| a. How often did this operation clean the system(s) in 2020? Check all that apply.  [If the never box is checked for Item 5464 in Column 1 or 5276 in Column 2, then skip item 25b and go to 25c; otherwise go to 24b.] | 1  For Air Blast / Air-assisted systems | 2  For Ground Boom systems |
| 5457 Before the season  5458 After the season  5459 Depended on the product(s)  5460 When switching from USDA certified organic to conventional blocks  5461 Regularly scheduled cleaning  5432 Other: specify:  5463  5464 Never | 5271 Before the season  5272 After the season  5273 Depended on the product(s)  5278 When switching from USDA certified organic to conventional blocks  5274 Regularly scheduled cleaning  5275 Other: specify:  5277  5276 Never |
| b. For each time that the system(s) was cleaned, how often was a tank cleaner used? | 5473  1 Always (100%)  2 Often (51% or more)  3 Sometimes (50% or less)  4 Never (0%)  99 Don't know | 5279  1 Always (100%)  2 Often (51% or more)  3 Sometimes (50% or less)  4 Never (0%)  99 Don't know |
| c. Did this operation use separate spray rigs for herbicides | Yes  No  Don’t Know |  |
| d. What were the most common reasons for replacing the nozzles on the sprayers in 2020? Check all that apply. | 5481 Regularly scheduled calendar based replacement (i.e., annually, twice annually, monthly, etc.)  5482 Regularly scheduled replacement based on operating time (I.e., sprayer operating hours)  5483 Sporadic replacement based on area covered or general intuition (i.e., it feels like the right time to change nozzles)  5484 Calibration problems (i.e.,  too high or too low a flow rate)  5485 Observed nozzle damage (e.g., change in spray pattern or leaks)  5486 Availability of new nozzle technologies  5487 Expert and/or consultant recommendations (e.g., Cooperative Extension, crop consultants, etc.)  5488 Other, please specify:  5480  5489  None of the above | 5491 Regularly scheduled calendar based replacement (i.e., annually, twice annually, monthly, etc.)  5492 Regularly scheduled replacement based on operating time (I.e., sprayer operating hours)  5493 Sporadic replacement based on area covered or general intuition (i.e., it feels like the right time to change nozzles)  5494 Calibration problems (i.e., too high or too low a flow rate)  5495 Observed nozzle damage (e.g., change in spray pattern or leaks)  5496 Availability of new nozzle technologies  5497 Expert and/or consultant recommendations (e.g., Cooperative Extension, crop consultants, etc.)  5498 Other, please specify:  5490  5499  None of the above |

7.On what proportion of fields did this operation wind-breaking structures, such as hedge rows, that are at least one and a half times the height of the crop canopy in 2020?

5300

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| --- | --- | --- | --- | --- | --- |
| 1 | 0% | 2 | 1% to 25% | 3 | 26% to 50% |
| 4 | 51% to 75% | 5 | 76% to 100% | 99 | Don't know |

8.How often were the following sources of information used to inform pest management decisions in 2020?

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Sources | | of | Information | 1  How often was this source of information used?   1. Always (100%) 2. Often (51% or more) 3. Sometimes (50% or less) 4. Never (0%)   99 Don't know  Code |
| a. Pesticide product labels........................................................... | | | | 5301 |
| b. University and/or Agricultural Cooperative Extension resources/recommendations................................................... | | | | 5303 |
| c. Non-university literature, such as trade magazines, catalogues,newspapers, etc.................... | | | | 5305 |
| d. Commodity/trade groups.......................................................... | | | | 5307 |
| e. Pesticide sales representatives and/or farm supply distributors............................................................................... | | | | 5309 |
| f. Independent crop consultants paid for by the operation......... | | | | 5311 |
| g. Crop consultants employed by pesticide companies or other  distributors....................................................................................... | | | | xxxx |
| h. Other grower(s). 5 | | | | ..3.1..3.. |
| i. Commercial or other non-university decision tools......................... | | | | 5315 |
| j. Weather forecasting tools......................................................... | | | | 5317 |
| k. | Other, Specify:5319 | .......... | | 5320 |

9.[If 8b, column 1 equals 1, 2, 3, ask--] Which of the following types of services offered by the University and/or Agricultural Cooperative Extension were most often used as sources of pest management decisions in 2020?

|  |  |
| --- | --- |
| University and/or Agricultural Cooperative Extension Services  ....... | How often was this source of information used?   1. Always (100%) 2. Often (51% or more) 3. Sometimes (50% or less) 4. Never (0%)   99 Don't know  ... Code |
| .......  a. Formal presentations (e.g., annual meetings, educational trainings).... | .5..322 |
| .......  b. Field days/demonstration workshops.................................................... | .5..323 |
| .......  c. Farm visits and/or one-on-one consultation.......................................... | .5..324 |
| ....... d. Email lists.............................................................................................. | .5..325 |
| ...... e. Newsletters and blogs............................................................................... | ..5.3. 26 |
| .......  f. Crop and/or Pest Protection Handbook................................................. | ..5.3.27 |
| ......  g. Other publications (e.g., fact sheets).................................................... | ..5.3. 28 |
| ......  h. Decision tools........................................................................................ | ..5.3. 29 |
| i. Other, Specify:5330 ............................. | 5331 |

resistance in 2020?

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| --- | --- | --- | --- | --- |
|  | | Only complete if operation uses herbicides | Only complete if operation uses fungicides | Only complete if operation uses insecticides |
| Practice to Manage Resistance for Herbicide, Fungicide and Insecticide | | How often was each practice used on this operation to manage herbicide resistance? | How often was each practice used on this operation to manage fungicide resistance? | How often was each practice used on this operation to manage insecticide resistance? |
|  | | 1. Always (100%) 2. Often (51% or more) 3. Sometimes (50% or less) 4. Never (0%)   99 Don't know | 1. Always (100%) 2. Often (51% or more) 3. Sometimes (50% or less) 4. Never (0%)   99 Don't know | 1. Always (100%) 2. Often (51% or more) 3. Sometimes (50% or less) 4. Never (0%)   99 Don't know |
| a. Scouting........................................................ | | 5510 | 5511 | 5512 |
| b. Field mapping weeds and/or keeping records of field history and pesticide use to assist pesticide decisions.............................. | | 5332 | 5333 | 5334 |
| c. Field Management/Sanitation Practices....... | |  |  |  |
| i. For weed control (e.g., managing weeds in field borders, tillage, preventing field-to-field and within field movement of weed seed)....................... | | 5335 |  |  |
| ii. For disease control (e.g., removing or incorporating unharvested material, cleaning transplant trays, sanitizing process or wash water) | |  | 5336 |  |
| iii. For insect control (e.g., removing or incorporating unharvested vegetables and/or other field litter)............................. | |  |  | 5337 |
| d. Planting disease-resistant cultivars and/or rootstock....................................................... | |  | 5338 |  |
| e. Use of pest diagnostic tools (e.g., Integrated Pest Management (IPM) treatment thresholds, predictive weather models (e.g., degree day models), pest forecasting systems, and/or assistance from diagnostic networks)............................. | |  | 5342 | 5343 |
| f. Pesticide Mode of Action (MOA) rotation...... | | 5344 | 5345 | 5346 |
| g. Pesticide Mode of Action (MOA) combination (i.e., tank mix or pre-mix product)......................................................... | | 5347 | 5348 | 5349 |
| h. | Rotating crops | 0000 | 0000 | 0000 |

11. In an effort to reduce off-target impacts to plants, pollinators, and/or beneficial insects, did this operation communicate with or consult any of the following sources in 2020? Check all that apply.

5351 Neighboring crop producers

5352 Nearby beekeepers

5353 A local expert, such as an Agricultural Cooperative Extension agent

5354 State managed pollinator protection plans, or MP3s (MP3s are state-developed efforts that intend to reduce pesticide exposure through timely communication and coordination among beekeeper growers, pesticide applicators, and landowners)

5355 Driftwatch - Driftwatch is a voluntary communication tool that enables crop producers, beekeeper and pesticide applicators to work together to protect crops and apiaries through the use of mapping programs.

5356 Other communication tool(s), Specify: 5358 5357 Other, Specify:5359

12. How often were the following Best Management Practice (BMPs) used during the season in 2020?

|  |  |  |  |
| --- | --- | --- | --- |
|  | | 1 | 2 |
| Best Management Practices | | How often was this practice used?   1. Always (100%) 2. Often (51% or more) 3. Sometimes (50% or less) 4. Never (0%)   99 Don't know | [Only answer if column 1 = 1, 2, or 3]  Was this practice specifically used to prevent exposure to bees?   1. Always (100%) 2. Often (51% or more) 3. Sometimes (50% or less) 4. Never (0%)   99 Don't know |
| a. | Avoid crop bloom time applications..................................... | 5520 | 5521 |
| b. | Make applications when temperatures are below 50°F........................................................................... | 5522 | 5523 |
| c. Maintain buffer between known beehive locations..... | | 5524 | 5525 |
| d. | Select pesticides that have the lowest residual toxicity to bees........................................................... | 5526 | 5527 |
| e. | Use alternative application methods of an active ingredient to prevent bee exposure (e.g., non-foliar applications when bees are foraging)......................... | 5528 | 5529 |
| f. | Avoid applications when dew is forecast.................... | 5530 | 5531 |
| g. | Manage blooming plants on the orchard floor before applying pesticides that are acutely toxic to bees (e.g., mowing)............................................................ | 5532 | 5533 |
| h. | Make application(s) at nighttime or no more than two hours prior to sunset............................................ | 5534 | 5535 |
| i. | Other, Specify:5536 .... | 5537 | 5538 |

13.Which of the following auditing systems, if any, did this operation participate in during 2020? Check all that apply.

5361 GLOBAL G.A.P.

5362 State Quality Food (SQF) Program

5363 Other, Specify:5365

5364 The operation did not participate in an auditing system

5369 Don't know

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|  | **CONCLUSION** |  |

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| **SURVEY RESULTS** | | |
| 1. To receive the complete results of this survey on the release date, go to http://www.nass.usda.gov/Surveys/Guide\_to\_NASS\_Surveys/ |  |  |

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| To have a brief summary emailed to you at a later date,  please enter your email address. | 1095 |

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| Would you rather have a brief summary mailed to you at a later date?. . . . . . . . . . . . . . . . . . |  | **CODE** |
| **YES = 1** | 9990 |
| [***Thank the respondent, then review this questionnaire.***] | | |
|  | |  |
| **ENDING TIME** [*MILITARY*]. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . | | 005  **\_\_\_ \_\_\_ \_\_\_ \_\_\_** |
|  | | **OFFICE USE**  **TIME IN HOURS** |
|  | | 006  **. \_\_\_** |

|  |  |  |
| --- | --- | --- |
| **RECORD USE** | | **CODE** |
| Did respondent use operation records to report pesticide data?. . . . . . . . . . . . . . . . . . . . . . . . | **YES = 1** | 064 |
| **SUPPLEMENT USE** | | |

|  |  |
| --- | --- |
| Record the total number of supplements used to complete this interview. | **NUMBER** |
| Fertilizer Supplements. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . | 067 |
| Pesticide Supplements. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . | 068 |

|  |  |  |
| --- | --- | --- |
|  |  |  |
| Operation Email: (if different from above) Operation Phone   |  |  |  | | --- | --- | --- | | 9937 | 9936 | Check if cell phone | | | |

|  |  |  |
| --- | --- | --- |
|  | | |
| Reported by: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | 9910  \_\_\_ \_\_\_ \_\_\_ \_\_\_ \_\_\_ \_\_\_  **M M D D Y Y** | 9911  Telephone: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **OFFICE USE** | | | | | | | | | | | | | | | | |
| **R. Unit** | **Ptr 1 Str** | | **Ptr 2 Str** | | **Ptr 3 Str** | | | **Ptr 4 Str** | **OPS** | | | **SSO 1** | **ADJ** | **Optional Use** | | |
| 9921 | 9922 | | 9923 | | 9927 | | | 9928 | 923 | | | 9907 | 922 | 9906 | | 9916 |
| **Response** | | | | **Respondent** | | | **Mode** | | | | **Enum.** | | **POID** | | | |
| 1-Comp  2-R  3-Inac  4-Office Hold | | 9901 | | 1-Op/Mgr  2-Sp  3-Acct/Bkpr  4-Partner  9-Other | | 9902 | 2-PATI (tel)  3-PAPI (Face-to-  Face) | | | 9903 | 9998 | | 9989  **\_\_\_ \_\_\_ \_\_\_ \_\_\_ \_\_\_ \_\_\_ \_\_\_ \_\_\_ \_\_\_** | | | |
| **Eval.** | | **Change** | |
| 9900 | | 9985 | |