**APPENDIX 1-6. Use Site Footprints for Clothianidin**

1. Agriculture Uses

Use site footprint layers represent the application sites for agricultural and non-agricultural label uses. The best available data to spatially characterize specific agricultural crops in the continuous United States (ConUS) is the Cropland Data Layer (CDL), produced by the U.S. Department of Agriculture. Several methods have been employed to minimize data errors within the CDL. The CDL is a landcover dataset that has over 100 cultivated classes that were grouped into 13 general classes (see **APPENDIX 1-5**). Lumping classes reduces the likelihood of errors of omission and commission between similar crop categories. In selecting how to group crops from the CDL, EPA referred to the grouping used by the U.S. Geological Survey (Baker and Capel, 2011[[1]](#footnote-1)) and the Generic Endangered Species Task Force (Amos *et al*., 2010[[2]](#footnote-2)). This information considers environmental factors that influence the location of crops and the error matrices provided by USDA with the original CDL data. By considering these agronomic factors in addition to the error matrices it is possible to improve the accuracy and year-to-year matches for these UDLs while retaining agronomic similarities. This categorical aggregation into the UDL crop groups does not account for changes in agricultural practices but the temporal aggregation does. The UDLs used in this assessment include 5 years of the CDL, 2013-2017, aggregated to account for changes year to year such as crop rotations. Anywhere a class occurs within those 5 years would be represented in the footprint layer. These temporally aggregated and categorially grouped layers generated from the CDL are referred to as Use Data Layers or UDLs.

The agricultural classes were further refined by comparing county level National Agricultural Statistics Service (NASS) 2012 Census of Agriculture (CoA) acreage reports to county level UDL acreages (additional detail can be found in the tool documentation, “**Processing the Census of Agriculture Data”** section). The UDL acreages represent the temporally aggregated and categorically grouped processing steps previously described, summarized at the county level. If a county’s UDL acreage for a given class was lower than the NASS acreage, the UDL extent was expanded within cultivated areas until the UDL acreage matched or exceeded the NASS CoA. Using the temporally and categorially aggregated UDL as an input, a script was developed that compares each UDL in each county to the corresponding NASS CoA acreage report. If the UDL acreage was less than NASS, the raster was expanded in 1 pixel iterations until the NASS acreage value was reached, exceeded, or the area within the cultivated mask was built out. Region growing was restricted using the UDL Cultivated Layer from the last year of the CDL as a mask (2017). This avoids buffering into any non-agricultural landcover types. This method reduces uncertainty related to landcover mapping by ensure the acres mapped on the ground in the UDL corresponds to the reported acreage from the CoA in this case, 2012. This helps addresses the uncertainty in acreage estimates in the landcover data given the known downward area bias in area estimates related to remotely sensed data. Additional details and the python scripts for this process can be found in with the tool documentation, **Generating Use Data Layers**, “**CDL to UDL Processing and Action Area Python Scripts**” section.

Every assessment begins with cross-walking registered uses into a landcover category. Chemicals are often not represented by all 13 UDL. Some chemicals specify geographic restrictions for a given use (*i.e*., application on wheat is limited to the state of Idaho). Geographic limitations for registered uses are imposed on the dataset downstream in the data processing workflow. The geographic restriction should be extracted from the use layer before it is aggregated with all other chemical uses to generate the action area for the chemical. Clothianidin’s foliar and soil agricultural uses are crosswalked to 9 of the UDLs classes, there are no geographic restrictions. A complete crosswalk for the clothianidin agricultural uses is provided in **Table 1** generated from **Attachment 1-4.** This crosswalk includes the label use name, the name(s) from the Census of Agriculture, SUUM use site (**APPENDIX 1-4**), and the UDL.

In addition to the potential use site each UDL is buffered in all directions using the ESRI ArcGIS Euclidean distance tool. This buffered area represents the potential exposure area associated with drift.

The CDL is not available for areas outside of the contiguous United States (ConUS). The CoA is often unavailable outside of ConUS as well. The Agricultural UDL Data Sources section describes how agriculture was spatially modeled by regions outside of ConUS, referred to as the non-lower 48 (NL48).

1. Non-Agricultural Uses

Non-agricultural label uses include a wide range of landcover and land use categories. Each label use was carefully considered and cross-walked with the best available landcover data. Where available, the 2016 National Land Cover Dataset (NLCD) was used to represent many non-agricultural label uses. Where NLCD wasn’t available, the NOAA C-CAP dataset and corresponding landcover classes were used. Details on the data sources for each non-agricultural UDL are provided in the Non-Agricultural UDL Data Source section. A complete crosswalk for the clothianidin non-agricultural uses is provided in **Table 2**. This crosswalk includes the label use name, SUUM use site (**APPENDIX 1-4**), and the UDL data sources used to generate each layer are provided in the UDL data source section.

1. Action Area

To create the action area for clothianidin all pertinent agricultural and non-agricultural UDLs are combined. This is completed by placing the UDLs on top of each other and combining them into one footprint. The resulting layer includes all locations found in each of the UDLs and with the buffered areas (non-use site locations) represented as minimum distance to a potential use site across all UDLs. This sets the exposure area for clothianidin related to drift. For additional detail on how the action area is generated see the tool documentation, “**CDL to UDL Processing and Action Area Python Scripts**” section.

1. UDL Data Sources
   1. Agricultural UDL Data Sources for the NL48

* **ConUS**
  + Cotton, Soybeans, Citrus, Grapes, Other Orchards, Other Row Crops, Other Crops, Rice, and Vegetables and Ground Fruit UDLs generated from the Cropland Data Layer (CDL) 2013-2017. See **APPENDIX 1-5** for details on the specific crops found in each UDL. National UDLS were used. The additional UDLs with registered seed treatment application include Corn, Wheat, and Other Grains UDLs in **APPENDIX 4-5.**
* **Alaska (AK)**
  + National Land Cover Dataset (NLCD 2016) Cultivated Class (82), inclusive of all agricultural crops,
* **Hawaii (HI)**
  + National Oceanic & Atmospheric Administration (NOAA) Coastal Change Analysis Program (CCAP 2011), Cultivated Class (6); inclusive of all agricultural crops
* **Puerto Rico (PR)**
  + NLCD Cultivated Class (2001) (82); inclusive of all agricultural crops
* **Guam (GU)**
  + CCAP 2011 Cultivated Class (6); inclusive of all agricultural crops
* **Marianas (CNMI)**
  + CCAP 2004 Cultivated Class (6); inclusive of all agricultural crops
* **American Samoa (AS)**
  + CCAP 2010 Cultivated Class (6) inclusive of all agricultural crops
* **Virgin Islands (VI)**
  + CCAP 2012 Cultivated Class (6) inclusive of all agricultural crops
  1. Non-Agricultural UDL Data Sources ConUS and NL48 – National Landcover Dataset (NLCD)

Non-agricultural label uses include a wide range of landcover and land use categories. Each label use was carefully considered and cross-walked with the best available UDL. It is possible for a label use to crosswalked to multiple UDLs, this is discussed in more detail in the individual UDL sections below. Where available, the 2016 National Land Cover Dataset (NLCD) for ConUs and AK and 2001 NLCD in PR was used to represent many non-agricultural label uses (see below). Where NLCD wasn’t available, the NOAA C-CAP and other dataset outlined below were used. Below is a sample of label classes that were represented using NLCD Developed or Open Space Developed land use categories. These different Developed classes are discussed in more detail below. Forest landcover categories from the NLCD or CCAP for forest label uses.

* Grain/cereal/flour bins
* Grain/cereal/flour elevators
* Household/domestic dwellings (perimeter outdoor only)
* Non-agricultural outdoor building structures
* Ornamental and/or shade trees
* Ornamental herbaceous plants
* Ornamental non-flowering plants
* Ornamental woody shrubs and vines
* Refuse/solid waste containers (outdoors)
* Refuse/solid waste sites (outdoors)
* Commercial/Institution-Al/ Industrial Premises/ Equip. (Indoor and Outdoor) – Broadcast, Crack and Crevice/Void
* Domestic Dwellings Outdoor Premises;
* Food Processing Plant Premises (Nonfood Contact) – Crack and Crevice
* Nonagricultural Outdoor Buildings/Structures
* Poultry Litter (Poultry houses)
* Recreational Areas
* Sewer Manhole Covers and Walls
* Utilities – Broadcast
* Wood Protection Treatment to Buildings/Products Outdoor

### ****Developed****

Developed land cover is used to spatially represent certain non-agricultural label uses and includes areas with a mixture of constructed materials and vegetation, where impervious surfaces account for 20% to 100 % percent of total cover. These areas most commonly include single-family housing units, apartment complexes, row houses and commercial/industrial.

* + **ConUS**
    - NLCD 2016 class 22-24
  + **Alaska**
    - NLCD 2016 class 22-24
  + **Hawaii**
    - CCAP 2011 class 2-4
  + **Puerto Rico**
    - NLCD 2001 class 22-24
  + **Guam**
    - CCAP 2011 class 2
  + **Marianas**
    - CCAP 2004 class 2
  + **American Samoa**
    - CCAP 2010 class 2
  + **Virgin Islands**
    - CCAP 2012 class 2

### Open Space Developed

Open Space Developed (OSD) is used to spatially represent certain non-agricultural label uses and includes areas with a mixture of some constructed materials, but mostly vegetation in the form of lawn grasses. Impervious surfaces account for less than 20% of total cover. These areas most commonly include large-lot single-family housing units, parks, golf courses, and vegetation planted in developed settings for recreation, erosion control, or aesthetic purposes.

* + **ConUS**
    - NLCD 2016 class 21
  + **Alaska**
    - NLCD 2016 class 21
  + **Hawaii**
    - CCAP 2011 class 5
  + **Puerto Rico**
    - NLCD 2001 class 21
  + **Guam**
    - CCAP 2011 class 5
  + **Marianas**
    - CCAP 2004 class 5
  + **American Samoa**
    - CCAP 2010 class 5
  + **Virgin Islands**
    - CCAP 2012 class 5
  1. Non-Agricultural UDL Data Sources ConUS and NL48 -Other Datasets

When the NLCD was inadequate to represent a label use, other data sources were used in modeling as appropriate. The following list describes each label use and how it was spatially modeled by region.

### Poultry litter

* Poultry litter assumed to be applied to the corn, soybeans, other grains, cotton, wheat, rice, other row crops, vegetables and ground fruit and alfalfa use data layers (UDLs). These UDLs were identified based on the 24 crops reported in Kellog et al. (2000) for manure/litter application. Kellog et al. (2000) identified these sites for manure/litter applications based on the assimilative capacity (or land application capacity).
* The spatial footprint was then made limited to the counties identified with potential poultry operations using the USDA National Agricultural Statistics Service (USDA-NASS). The USDA-NASS collects data on livestock and poultry production in the United States through its ongoing survey programs as well as through the Census of Agriculture conducted every five years. Both survey and census data can be accessed through the Quick Stats Database Tool (<https://quickstats.nass.usda.gov/>), this effort used the census data. This tool allows users to specify the geographic unit of extraction and table desired. Both operations with inventory (i.e. number of operations) and inventory (i.e. number of animals) were used to identify poultry operation. The poultry inventory data only includes turkey, rooster, broiler and layer inventories. Whereas, poultry operations with inventory data includes total poultry operations. Therefore, while downloading data different filtering options were used in both conditions. The data with “withheld to avoid disclosing data for individual operations (data with D abbreviations )” was crosschecked with the “Operations with inventory” (# of operations) county data, and if the specific county has data, was “withheld to avoid disclosing data for individual operations (data with D abbreviations )” included to determine spatial footprint. Counties with no data probably contain developed area and have lesser chance to have poultry operations. But to be conservative and consistent with other agricultural use processing, these no data counties were also included to determine spatial footprint. These yield an entire national level poultry spatial footprint. Drift is not included with this UDL.
* **ConUS**
  + The 8 UDLs that encompass 24 crops references Kellog (2000) were combined into one layer to identify the spatial footprint for litter application.
* **Alaska (AK)**
  + NLCD 2016 Cultivated Class (82); inclusive of all agricultural crops.
* **Hawaii (HI)**
  + CCAP 2011 Cultivated Class (6); inclusive of all agricultural crops.
* **Puerto Rico (PR)**
  + NLCD 2001 Cultivated Class (82); inclusive of all agricultural crops.
* **Guam (GU)**
  + CCAP 2011 Cultivated Class (6); inclusive of all agricultural crops.
* **Marianas (CNMI)**
  + CCAP 2004 Cultivated Class (6); inclusive of all agricultural crops.
* **American Samoa (AS)**
  + CCAP Cultivated Class (6) inclusive of all agricultural crops.
* **Virgin Islands (VI)**
  + CCAP Cultivated Class (6) inclusive of all agricultural crops.

Table 1. Crosswalk of clothianidin agricultural uses across crop sources

| **Crop Reported in SUUM** | **Census Of Agriculture** | **ConUS UDL** | **NL48 UDL** | **Notes** |
| --- | --- | --- | --- | --- |
| **Agricultural Crops, Foliar** | | | | |
| Arracacia (Persian Carrot) | VEGETABLES, OTHER | Vegetables and ground fruit | Ag |  |
| Arrowroot | VEGETABLES, OTHER | Vegetables and ground fruit | Ag |  |
| Artichoke, Chinese | VEGETABLES, OTHER | Vegetables and ground fruit | Ag |  |
| Artichoke (excluding Jerusalem) | ARTICHOKES | Vegetables and ground fruit | Ag |  |
| Artichoke, Jerusalem | VEGETABLES, OTHER | Vegetables and ground fruit | Ag |  |
| Canna (Edible) | VEGETABLES, OTHER | Vegetables and ground fruit | Ag |  |
| Chayote (Root) | VEGETABLES, OTHER | Vegetables and ground fruit | Ag |  |
| Chufa (Ground Almond) | VEGETABLES, OTHER | Vegetables and ground fruit | Ag |  |
| Ginger | GINGER ROOT | Vegetables and ground fruit | Ag |  |
| Leren | VEGETABLES, OTHER | Vegetables and ground fruit | Ag |  |
| Manioc (Cassava) | VEGETABLES, OTHER | Vegetables and ground fruit | Ag |  |
| Potatoes | POTATOES | Vegetables and ground fruit | Ag |  |
| Sweet Potato | SWEET POTATOES | Vegetables and ground fruit | Ag |  |
| Tanier | VEGETABLES, OTHER | Vegetables and ground fruit | Ag |  |
| Taro | TARO | Vegetables and ground fruit | Ag |  |
| Turmeric | VEGETABLES, OTHER | Vegetables and ground fruit | Ag |  |
| Yam | VEGETABLES, OTHER | Vegetables and ground fruit | Ag |  |
| Yautia | VEGETABLES, OTHER | Vegetables and ground fruit | Ag |  |
| Amaranth, Chinese | VEGETABLES, OTHER | Vegetables and ground fruit | Ag |  |
| Celery | CELERY | Vegetables and ground fruit | Ag |  |
| Cress, Garden | VEGETABLES, OTHER | Vegetables and ground fruit | Ag |  |
| Cress, Upland | VEGETABLES, OTHER | Vegetables and ground fruit | Ag |  |
| Dandelion | VEGETABLES, OTHER | Vegetables and ground fruit | Ag |  |
| Dock (Sorrel) | VEGETABLES, OTHER | Vegetables and ground fruit | Ag |  |
| Endive (Escarole) | ESCAROLE & ENDIVE | Vegetables and ground fruit | Ag |  |
| Lettuce | LETTUCE | Vegetables and ground fruit | Ag |  |
| Orach (Mountain Spinach) | VEGETABLES, OTHER | Vegetables and ground fruit | Ag |  |
| Parsley | PARSLEY | Vegetables and ground fruit | Ag |  |
| Purslane, Garden | VEGETABLES, OTHER | Vegetables and ground fruit | Ag |  |
| Purslane, Winter | VEGETABLES, OTHER | Vegetables and ground fruit | Ag |  |
| Radicchio | VEGETABLES, OTHER | Vegetables and ground fruit | Ag |  |
| Roquette (Arugula) | VEGETABLES, OTHER | Vegetables and ground fruit | Ag |  |
| Spinach | SPINACH | Vegetables and ground fruit | Ag |  |
| Spinach, New Zealand | VEGETABLES, OTHER | Vegetables and ground fruit | Ag |  |
| Other Leafy Vegetables | VEGETABLES, OTHER | Vegetables and ground fruit | Ag |  |
| Broccoli | BROCCOLI | Vegetables and ground fruit | Ag |  |
| Brussels sprouts | BRUSSELS SPROUTS | Vegetables and ground fruit | Ag |  |
| Cabbage | CABBAGE, HEAD | Vegetables and ground fruit | Ag |  |
| Cauliflower | CAULIFLOWER | Vegetables and ground fruit | Ag |  |
| Other Brassica (Cole) Vegetables | VEGETABLES, OTHER | Vegetables and ground fruit | Ag |  |
| Soybeans | SOYBEANS | Soybeand | Ag |  |
| Eggplant | EGGPLANT | Vegetables and ground fruit | Ag |  |
| Peppers | PEPPERS, BELL; PEPPERS, CHILE | Vegetables and ground fruit | Ag |  |
| Tomatoes | TOMATOES | Vegetables and ground fruit | Ag |  |
| Other Fruiting Vegetables | VEGETABLES, OTHER | Vegetables and ground fruit | Ag |  |
| Cantaloupes | MELONS, CANTALOUP | Vegetables and ground fruit | Ag |  |
| Cucumbers | CUCUMBERS | Vegetables and ground fruit | Ag |  |
| Honeydew Melon | MELONS, HONEYDEW | Vegetables and ground fruit | Ag |  |
| Pumpkins | PUMPKINS | Vegetables and ground fruit | Ag |  |
| Squash | SQUASH | Vegetables and ground fruit | Ag |  |
| Watermelons | MELONS, WATERMELON | Vegetables and ground fruit | Ag |  |
| Other Cucurbit Vegetables | VEGETABLES, OTHER | Vegetables and ground fruit | Ag |  |
| Apples | APPLES | Other Orchards | Ag |  |
| Pears | PEARS | Other Orchards | Ag |  |
| Other Pome Fruit | NON-CITRUS, OTHER, (EXCL BERRIES) | Other Orchards | Ag |  |
| Peaches | PEACHES | Other Orchards | Ag |  |
| Grapes (except Wine) | GRAPES | Grapes | Ag |  |
| Grapes, Wine | GRAPES | Grapes | Ag |  |
| Blueberry | BLUEBERRIES, TAME; BLUEBERRIES, WILD | Vegetables and ground fruit | Ag |  |
| Cranberry | CRANBERRIES | Vegetables and ground fruit | Ag |  |
| Other Low Growing Berries | BERRIES, OTHER | Vegetables and ground fruit | Ag |  |
| Almonds | ALMONDS | Other Orchards | Ag |  |
| Filberts (Hazelnuts) | HAZELNUTS | Other Orchards | Ag |  |
| Pecans | PECANS | Other Orchards | Ag |  |
| Pistachios | PISTACHIOS | Other Orchards | Ag |  |
| Walnuts | WALNUTS, ENGLISH | Other Orchards | Ag |  |
| Other Tree Nuts | TREE NUTS, OTHER | Other Orchards | Ag |  |
| Rice | RICE; WILD, RICE | Rice | Rice |  |
| Cotton (Unspecified) | COTTON | Cotton | Ag |  |
| Fig | FIGS | Other Orchards | Ag |  |
| Pomegranate | POMEGRANATES | Other Orchards | Ag |  |
| Tobacco | TOBACCO | Row Crops | Ag |  |
| **Agricultural Crops, Soil** | | | | |
| Arracacia (Persian Carrot) | VEGETABLES, OTHER | Vegetables and ground fruit | Ag |  |
| Arrowroot | VEGETABLES, OTHER | Vegetables and ground fruit | Ag |  |
| Artichoke, Chinese | VEGETABLES, OTHER | Vegetables and ground fruit | Ag |  |
| Artichoke (excluding Jerusalem) | ARTICHOKES | Vegetables and ground fruit | Ag |  |
| Artichoke, Jerusalem | VEGETABLES, OTHER | Vegetables and ground fruit | Ag |  |
| Canna (Edible) | VEGETABLES, OTHER | Vegetables and ground fruit | Ag |  |
| Chayote (Root) | VEGETABLES, OTHER | Vegetables and ground fruit | Ag |  |
| Chufa (Ground Almond) | VEGETABLES, OTHER | Vegetables and ground fruit | Ag |  |
| Ginger | GINGER ROOT | Vegetables and ground fruit | Ag |  |
| Leren | VEGETABLES, OTHER | Vegetables and ground fruit | Ag |  |
| Manioc (Cassava) | VEGETABLES, OTHER | Vegetables and ground fruit | Ag |  |
| Potatoes | POTATOES | Vegetables and ground fruit | Ag |  |
| Sweet Potato | SWEET POTATOES | Vegetables and ground fruit | Ag |  |
| Tanier | VEGETABLES, OTHER | Vegetables and ground fruit | Ag |  |
| Taro | TARO | Vegetables and ground fruit | Ag |  |
| Turmeric | VEGETABLES, OTHER | Vegetables and ground fruit | Ag |  |
| Yam | VEGETABLES, OTHER | Vegetables and ground fruit | Ag |  |
| Yautia | VEGETABLES, OTHER | Vegetables and ground fruit | Ag |  |
| Amaranth, Chinese | VEGETABLES, OTHER | Vegetables and ground fruit | Ag |  |
| Celery | CELERY | Vegetables and ground fruit | Ag |  |
| Cress, Garden | VEGETABLES, OTHER | Vegetables and ground fruit | Ag |  |
| Cress, Upland | VEGETABLES, OTHER | Vegetables and ground fruit | Ag |  |
| Dandelion | VEGETABLES, OTHER | Vegetables and ground fruit | Ag |  |
| Dock (Sorrel) | VEGETABLES, OTHER | Vegetables and ground fruit | Ag |  |
| Endive (Escarole) | ESCAROLE & ENDIVE | Vegetables and ground fruit | Ag |  |
| Lettuce | LETTUCE | Vegetables and ground fruit | Ag |  |
| Orach (Mountain Spinach) | VEGETABLES, OTHER | Vegetables and ground fruit | Ag |  |
| Parsley | PARSLEY | Vegetables and ground fruit | Ag |  |
| Purslane, Garden | VEGETABLES, OTHER | Vegetables and ground fruit | Ag |  |
| Purslane, Winter | VEGETABLES, OTHER | Vegetables and ground fruit | Ag |  |
| Radicchio | VEGETABLES, OTHER | Vegetables and ground fruit | Ag |  |
| Roquette (Arugula) | VEGETABLES, OTHER | Vegetables and ground fruit | Ag |  |
| Spinach | SPINACH | Vegetables and ground fruit | Ag |  |
| Spinach, New Zealand | VEGETABLES, OTHER | Vegetables and ground fruit | Ag |  |
| Other Leafy Vegetables | VEGETABLES, OTHER | Vegetables and ground fruit | Ag |  |
| Broccoli | BROCCOLI | Vegetables and ground fruit | Ag |  |
| Brussels sprouts | BRUSSELS SPROUTS | Vegetables and ground fruit | Ag |  |
| Cabbage | CABBAGE, HEAD | Vegetables and ground fruit | Ag |  |
| Cauliflower | CAULIFLOWER | Vegetables and ground fruit | Ag |  |
| Other Brassica (Cole) Vegetables | VEGETABLES, OTHER | Vegetables and ground fruit | Ag |  |
| Cantaloupes | MELONS, CANTALOUP | Vegetables and ground fruit | Ag |  |
| Cucumbers | CUCUMBERS | Vegetables and ground fruit | Ag |  |
| Honeydew Melon | MELONS, HONEYDEW | Vegetables and ground fruit | Ag |  |
| Pumpkins | PUMPKINS | Vegetables and ground fruit | Ag |  |
| Squash | SQUASH | Vegetables and ground fruit | Ag |  |
| Watermelons | MELONS, WATERMELON | Vegetables and ground fruit | Ag |  |
| Other Cucurbit Vegetables | VEGETABLES, OTHER | Vegetables and ground fruit | Ag |  |
| Apples | APPLES | Other Orchards | Ag |  |
| Pears | PEARS | Other Orchards | Ag |  |
| Other Pome Fruit | NON-CITRUS, OTHER, (EXCL BERRIES) | Other Orchards | Ag |  |
| Grapes (except Wine) | GRAPES | Grapes | Ag |  |
| Grapes, Wine | GRAPES | Grapes | Ag |  |
| Blueberry | BLUEBERRIES, TAME; BLUEBERRIES, WILD | Vegetables and ground fruit | Ag |  |
| Cranberry | CRANBERRIES | Vegetables and ground fruit | Ag |  |
| Other Low Growing Berries | BERRIES, OTHER | Vegetables and ground fruit | Ag |  |
| Almonds | ALMONDS | Other Orchards | Ag |  |
| Filberts (Hazelnuts) | HAZELNUTS | Other Orchards | Ag |  |
| Pecans | PECANS | Other Orchards | Ag |  |
| Pistachios | PISTACHIOS | Other Orchards | Ag |  |
| Walnuts | WALNUTS, ENGLISH | Other Orchards | Ag |  |
| Other Tree Nuts | TREE NUTS, OTHER | Other Orchards | Ag |  |
| Citrus | CITRUS, OTHER; GRAPEFRUIT; KUMQUATS; LEMONS;LIMES; ORANGES; TANGELOS; TANGERINES | Citrus |  | FL only (S18), nonbearing |
| Corn | CORN, GRAIN; CORN, SILAGE; CORN, TRADITIONAL OR INDIAN | Corn | Ag | EUP |
| Pomegranate | POMEGRANATES | Other Orchards | Ag |  |
| Tobacco | TOBACCO | Row Crops | Ag |  |
| **Seed Treatment** | | | | |
| Guayule (Rubber) | N/A | Other Row Crops | N/A | Pinal County-AZ |
| Carrot (Including Top) (Seed Treatment) | CARROTS | Vegetable and Ground Fruit Seed | Ag |  |
| Chervil (Seed Treatment) | VEGETABLES, OTHER | Vegetable and Ground Fruit Seed | Ag |  |
| Sugar Beet (Seed Treatment) | SUGARBEETS | Vegetable and Ground Fruit Seed | Ag |  |
| Arracacia (Persian Carrot) (Seed Treatment) | VEGETABLES, OTHER | Vegetable and Ground Fruit Seed | Ag |  |
| Arrowroot (Seed Treatment) | VEGETABLES, OTHER | Vegetable and Ground Fruit Seed | Ag |  |
| Artichoke, Chinese (Seed Treatment) | VEGETABLES, OTHER | Vegetable and Ground Fruit Seed | Ag |  |
| Artichoke, Globe (Seed Treatment) | ARTICHOKES | Vegetable and Ground Fruit Seed | Ag |  |
| Artichoke, Jerusalem (Seed Treatment) | VEGETABLES, OTHER | Vegetable and Ground Fruit Seed | Ag |  |
| Canna (Edible) | VEGETABLES, OTHER | Vegetable and Ground Fruit Seed | Ag |  |
| Chayote (Root) (Seed Treatment) | VEGETABLES, OTHER | Vegetable and Ground Fruit Seed | Ag |  |
| Chufa (Ground Almond) (Seed Treatment) | VEGETABLES, OTHER | Vegetable and Ground Fruit Seed | Ag |  |
| Ginger (Seed Treatment) | GINGER ROOT | Vegetable and Ground Fruit Seed | Ag |  |
| Leren (Seed Treatment) | VEGETABLES, OTHER | Vegetable and Ground Fruit Seed | Ag |  |
| Manioc (Cassava) (Seed Treatment) | VEGETABLES, OTHER | Vegetable and Ground Fruit Seed | Ag |  |
| Potatoes (Seed Treatment) | POTATOES | Vegetable and Ground Fruit Seed | Ag |  |
| Sweet Potato (Seed Treatment) | SWEET POTATOES | Vegetable and Ground Fruit Seed | Ag |  |
| Tanier (Seed Treatment) | VEGETABLES, OTHER | Vegetable and Ground Fruit Seed | Ag |  |
| Taro (Seed Treatment) | TARO | Vegetable and Ground Fruit Seed | Ag |  |
| Turmeric (Seed Treatment) | VEGETABLES, OTHER | Vegetable and Ground Fruit Seed | Ag |  |
| Yam (Seed Treatment) | VEGETABLES, OTHER | Vegetable and Ground Fruit Seed | Ag |  |
| Yautia (Seed Treatment) | VEGETABLES, OTHER | Vegetable and Ground Fruit Seed | Ag |  |
| Leek (Seed Treatment) | ONIONS, GREEN | Vegetable and Ground Fruit Seed | Ag |  |
| Onion (Seed Treatment) | ONIONS, GREEN; ONIONS, DRY | Vegetable and Ground Fruit Seed | Ag |  |
| Onion, Scallion (Seed Treatment) | ONIONS, GREEN; ONIONS, DRY | Vegetable and Ground Fruit Seed | Ag |  |
| Amaranth, Chinese (Seed Treatment) | VEGETABLES, OTHER | Vegetable and Ground Fruit Seed | Ag |  |
| Chrysanthemum, Garland (Seed Treatment) | VEGETABLES, OTHER | Vegetable and Ground Fruit Seed | Ag |  |
| Corn, Salad (Seed Treatment) | VEGETABLES, OTHER | Vegetable and Ground Fruit Seed | Ag |  |
| Cress, Garden (Seed Treatment) | VEGETABLES, OTHER | Vegetable and Ground Fruit Seed | Ag |  |
| Cress, Upland (Seed Treatment) | VEGETABLES, OTHER | Vegetable and Ground Fruit Seed | Ag |  |
| Dandelion (Seed Treatment) | VEGETABLES, OTHER | Vegetable and Ground Fruit Seed | Ag |  |
| Dock (Sorrel) (Seed Treatment) | VEGETABLES, OTHER | Vegetable and Ground Fruit Seed | Ag |  |
| Endive (Escarole) (Seed Treatment) | ESCAROLE & ENDIVE | Vegetable and Ground Fruit Seed | Ag |  |
| Lettuce (Seed Treatment) | LETTUCE | Vegetable and Ground Fruit Seed | Ag |  |
| Orach (Mountain Spinach) (Seed Treatment) | VEGETABLES, OTHER | Vegetable and Ground Fruit Seed | Ag |  |
| Parsley (Seed Treatment) | PARSLEY | Vegetable and Ground Fruit Seed | Ag |  |
| Purslane, Garden (Seed Treatment) | VEGETABLES, OTHER | Vegetable and Ground Fruit Seed | Ag |  |
| Purslane, Winter (Seed Treatment) | VEGETABLES, OTHER | Vegetable and Ground Fruit Seed | Ag |  |
| Radicchio (Seed Treatment) | VEGETABLES, OTHER | Vegetable and Ground Fruit Seed | Ag |  |
| Roquette (Arugula) (Seed Treatment) | VEGETABLES, OTHER | Vegetable and Ground Fruit Seed | Ag |  |
| Spinach (Seed Treatment) | SPINACH | Vegetable and Ground Fruit Seed | Ag |  |
| Spinach, New Zealand (Seed Treatment) | VEGETABLES, OTHER | Vegetable and Ground Fruit Seed | Ag |  |
| Broccoli (Seed Treatment) | BROCCOLI | Vegetable and Ground Fruit Seed | Ag |  |
| Soybeans (Seed Treatment) | SOYBEANS | Soybeand | Ag |  |
| Barley (Seed Treatment) | BARLEY | Other Grains | Ag | This UDL will not be part of the action area because it is seed treatment only. Extent is captured by other uses in action area. |
| Buckwheat (Seed Treatment) | BUCKWHEAT | Other Grains | Ag | This UDL will not be part of the action area because it is seed treatment only. Extent is captured by other uses in action area. |
| Corn (Seed Treatment) | CORN, GRAIN; CORN, SILAGE; CORN, TRADITIONAL OR INDIAN | Corn | Ag |  |
| Corn, Field (Seed Treatment) | CORN, GRAIN; CORN, SILAGE; CORN, TRADITIONAL OR INDIAN | Corn | Ag |  |
| Corn, Pop (Seed Treatment) | SWEET CORN | Vegetable and Ground Fruit Seed | Ag |  |
| Millet (Seed Treatment) | MILLET, PROSO | Other Grains | Ag | This UDL will not be part of the action area because it is seed treatment only. Extent is captured by other uses in action area. |
| Oats (Seed Treatment) | OATS | Other Grains | Ag | This UDL will not be part of the action area because it is seed treatment only. Extent is captured by other uses in action area. |
| Rice (Seed Treatment) | RICE | Other Grains | Ag | This UDL will not be part of the action area because it is seed treatment only. Extent is captured by other uses in action area. |
| Rye (Seed Treatment) | RYE | Other Grains | Ag | This UDL will not be part of the action area because it is seed treatment only. Extent is captured by other uses in action area. |
| Sorghum (Seed Treatment) | SORGHUM, SILAGE; SORGHUM, GRAIN | Other Grains | Ag | This UDL will not be part of the action area because it is seed treatment only. Extent is captured by other uses in action area. |
| Sweet Corn (Seed Treatment) | SWEET CORN | Vegetable and Ground Fruit Seed | Ag |  |
| Sweet Corn (Seed Treatment) | SWEET CORN | Vegetable and Ground Fruit Seed | Ag | ID only |
| Teosinte (Seed Treatment) | FIELD CROPS, OTHER | Vegetable and Ground Fruit Seed | Ag |  |
| Triticale (Seed Treatment) | TRITICALE | Other Grains | Ag | This UDL will not be part of the action area because it is seed treatment only. Extent is captured by other uses in action area. |
| Wheat (Seed Treatment) | WHEAT | Wheat | Ag | This UDL will not be part of the action area because it is seed treatment only. Extent is captured by other uses in action area. |
| Canola/ Rapeseed (Seed Treatment) | CANOLA; RAPESEED | Other Grains | Ag | This UDL will not be part of the action area because it is seed treatment only. Extent is captured by other uses in action area. |
| Mustard (Seed Treatment) | MUSTARD, SEED | Other crops? | Ag | This UDL will not be part of the action area because it is seed treatment only. Extent is captured by other uses in action area. |
| Cotton (Seed Treatment) | COTTON | Cotton | Ag |  |

**Table 2. Crosswalk of clothianidin** **non-agricultural uses.**

| **Crop Reported in SUUM** | **ConUS UDL** | **NL48 UDL** | **Notes** |
| --- | --- | --- | --- |
| Agricultural/ Farm Building | Developed | Developed |  |
| Airports/ Landing Fields | Developed | Developed |  |
| Commercial Storage/ Warehouse | Developed | Developed |  |
| Commercial/Industrial Premises (Outdoor) | Developed | Developed |  |
| Residential (Outdoor) | Developed | Developed |  |
| Residential Apple | Developed | Developed |  |
| Residntial Crabapple | Developed | Developed |  |
| Residential Pear | Developed | Developed |  |
| Ornamentals (except Trees) | Open Space Developed | Open Space Developed |  |
| Ornamental Lawns and Turf | Open Space Developed | Open Space Developed |  |
| Golf Courses | Open Space Developed | Open Space Developed |  |
| Turf / Recreational Areas | Open Space Developed | Open Space Developed |  |
| Ornamental and/or Shade Trees | Open Space Developed | Open Space Developed |  |
| Interior Plantscapes | Open Space Developed | Open Space Developed |  |
| Sod Farms | Other crops | Ag |  |
| Fruit & Nut Trees (Nonbearing) | Other Orchards | Ag |  |

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