# Raven Yield Standard

## 1    Format (-)

Raven yield output format will follow the ESRI Point Shapefile format. This format includes 4 separate files a ".shp", a ".shx", a ".dbf", and a ".prj" file. All of these files are needed to make a "Shapefile".

### 1.1    Format Concepts (-)

The concept for this format is that enough data can be put into the DBF file that will allow the user to use the DBF file alone for data processing and certain GIS tools. The user can also change the DBF to a CSV file for import into other older tools that only take that format.

## 2    Use Case Scenarios (-)

The Raven Yield point shapefile will be created as a result of harvesting. During harvest the monitor will calculate the amount of grain flowing through the system. Each second the monitor will record all the information needed with that grain flow and assign the latitude and longitude point for which the grain should be associated. The latitude point, longitude point, distance, and width accommodate for the user entered yield delay.

## 3    Shapefile (-)

### 3.1    SHP File (-)

This is a standard point SHP file. That means instead of using multiple points to make a polygon we are just assigning a single point to geo reference the data.

### 3.2    SHX File (-)

This is a standard point SHX file.

### 3.3    PRJ File (-)

This is a standard point PRJ file that defines the projection
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### 3.4    DBF File (-)

The DBF file is the heart of the Raven Yield Protocol. It defines the values for which the tools will use to display and calculate the yield for the file.  ScaleA thru D are just possible unit conversions for the generic calculations.

| Field Name | Precision | Unit | Description |
|---|---|---|---|
| TimeStamp | Character | 7/11/2013 1:00:33 PM | The local time of day and the date. Local time of day is determined by the monitor. This is not GMT time. |
| Crop | Integer | ID | The type of crop selected. Use the Crop Identifier 3.4.1 section of this document for definition. |
| Width | 2 decimal | Centimeters (CM) | The width of the crop that was cut. (This term is effected by yield delay) |
| Flow | 2 decimal | Kilograms per second | The current flow of the system. |
| Moisture | 2 decimal | Percent | Percent of moisture observed. |
| AccumWeigh | 2 decimal | Kilograms | The current total kilograms since job start. |
| Latitude | 6 decimal | Decimal degrees | The latitude of the point where the yield was observed. (This term is effected by |

| | | | yield delay) |
|---|---|---|---|
| Longitude | 6 decimal | Decimal Degrees | The longitude of the point where the yield was observed. (This term is effected by yield delay) |
| Distance | 4 decimal | Meters | The distance from the last observed point to this point. (Distance will be 0 for the first record of each job start / restart) |
| Duration | 2 decimal | Seconds | Time in seconds from the last observation to this observation. |
| Density | 2 decimal | Kilograms per liter | This is the observed density during the running of the field. |
| KgHaWet | 2 decimal | Kilograms per Hectare | The calculated kilograms per Hectare at the observed moisture. NOTE: this value will have some filtering applied and will not equal ((Flow * Duration) / ((Width x scaleA) x Distance) * scaleB) |
| KgHaDry | 2 decimal | Kilograms per Hectare | The calculated kilograms per Hectare at the standard moisture. NOTE: this value will have some filtering applied and will not equal (((Flow * Duration) * scaleD) / ((Width x scaleA) x Distance) * scaleB) |
| BPAWet | 2 decimal | Bushels per Acre | The calculated BPA at the observed moisture. NOTE: this value will have some filtering applied and will not equal (((Flow * Duration) *scaleC) / ((Width x scaleA) x Distance) * scaleB) |
| BPADry | 2 decimal | Bushels per Acre | The calculated BPA at the standard moisture. NOTE: this value will have some filtering applied and will not equal (((Flow * Duration) * scaleE) / ((Width x scaleA) x Distance) * scaleB) |

### 3.4.1 Crop Identifiers

| Crop Name | Crop ID | Description |
|---|---|---|
| Corn | 0 | Standard yellow corn. |
| Wheat | 1 | |
| Soybeans | 2 | |
| Barley | 3 | |
| Oats | 4 | |
| Canola | 5 | |
| Linseed | 6 | |
| Peas | 7 | |
| Crop 1 | 8 | Generic Crop that is to be used only when the crop is not available in the list. This could be any crop and only known by the user. |
| Crop 2 | 9 | Generic Crop that is to be used only when the crop is not available in the list. This could be any crop and only |

|  |  | known by the user. |
| --- | --- | --- |
| Milo | 10 |  |
| Brown Mustard Seed | 11 |  |
| Flax | 12 | Flax |
| Lentils | 13 | Lentils |
| Medium Grain Rice | 14 | Medium Grain Rice |
| Long Grain Rice | 15 | Long Grain Rice |
| Sunflowers | 16 | Sunflowers |
| Durum | 17 | Durum |
| Chick Peas | 18 | Chick Peas |