Interpreting Hay and Pasture Mixture Seed Tags

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Being able to read and interpret a seed tag is important for making seed purchase decisions. The following is an example seed tag along with definitions and explanations of what is on the tag. Seed tags usually, but not always, contain the following information. Federal and most state laws require most of this information to be on a seed tag attached to the seed bag or box:

- **Name of the seed brand** - if it is a mixture of different seed species and/or cultivars, then there is usually some brand name associated with it. In this example, it is “Vermont Pasture Mix”. By definition, a mixture is two or more species and a blend is two or more cultivars (varieties) of a brand.

- **Purity** – Percentage of the variety or varieties by weight as determined by laboratory analysis on a representative sample of the seed lot. A seed lot is a defined quantity of seed that is handled as a single unit (usually from same field harvested on same day and cleaned at the same time); thus, a seed tag should represent the whole “lot” of that seed.

- **Variety and Kind** – indicates the cultivar and forage specie. It is best to avoid seed that has no variety name, just the specie name. Sometimes the term “common” will be in place of a named variety. In either case, you really have no idea what variety you will be seeding.

- **Germination** – the percentage of seed of each cultivar/specie that germinate under ideal laboratory conditions. This should indicate what percent of the seed will establish if you seed it in a well prepared seedbed under good growing conditions.

- **Dormant/Hard Seed** – the percentage of seed of each cultivar/specie that are tested to be dormant which results in delayed germination. Many legumes will have a certain percentage of seed that have a hard seed coat, which is a type of primary dormancy and also delays germination.

- **Other ingredients** – the percentage (by weight) of weed seed, inert ingredients (often broken plant parts), and other crop seed (for turf grasses, these are often forage grass seed such as orchardgrass, tall fescue, Kentucky bluegrass, etc.). High quality seed should have less than 4% “other ingredients” in the bag.

- **Restricted noxious weeds** – many states have a noxious weed list and these are supposed to be listed

- **Test Date** – the date of the last laboratory analysis, which includes an evaluation of purity and germination. Most grass seed loose viability quickly unless stored in very cool, dry conditions. If the date is greater than a year old, then the germination results will not be reliable.

- **Lot Number** – allows the company or a seed inspector to go back to the original source

- **Origin** – either the country or state in which the seed was produced

- **Seed company name and address** – must be on the seed tag by law

- **Endophyte Infected or Enhanced** – some grass seed may contain endophyte or may be free of endophyte and some companies will put that information on their seed tags.
Interpretation of the Seed Tag

Information on the seed tag can help you make certain seeding decisions:

- **Is it the right mixture for your seeding conditions?** Most mixture recommendations are based on percentage by weight of total seed, so the seed tag can tell you quickly if the Brand you are looking at fits within the range of your criteria.

- **Does the seed meet your quality standards?** High quality seed should have less than 5% “other ingredients” in the bag. If it is greater than this, then you should adjust the seeding rate accordingly. High quality seed should usually have a germination of 85% or greater. There may be a few exceptions to this rule (some grass species are naturally low in germination).

If overall germination is less than 85% and “other ingredients” are greater than 5%, then you should adjust your seeding rate to compensate or purchase better quality seed. First, calculate the Pure Live Seed (PLS), which is the percent purity times percent germination:

\[
\% \text{ Pure Live Seed (PLS)} = \left( \% \text{ Purity} \times \% \text{ Germination} \right)/100
\]

For example, for the Shademaster red clover on the above seed tag:

\[
\% \text{ PLS} = \left( 20.5\% \text{ purity} \times 80\% \text{ germination} \right)/100 = 30\% \text{ PLS}
\]

Calculating PLS and using it to adjust seeding rate is easier to do with a single component seed, but you can calculate overall PLS of a mixture by calculating the PLS of each individual component and then totaling the PLS for all components.

<table>
<thead>
<tr>
<th>Component</th>
<th>Purity (%)</th>
<th>Germination (%)</th>
<th>PLS (%)</th>
<th>Actual Proportion (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shademaster RC</td>
<td>20.5</td>
<td>80</td>
<td>16</td>
<td>21%</td>
</tr>
<tr>
<td>Dawn KB</td>
<td>22.7</td>
<td>85</td>
<td>19</td>
<td>24%</td>
</tr>
<tr>
<td>Fungus Free TF</td>
<td>20.3</td>
<td>87</td>
<td>18</td>
<td>22%</td>
</tr>
<tr>
<td>Dare PR</td>
<td>15.9</td>
<td>88</td>
<td>14</td>
<td>18%</td>
</tr>
<tr>
<td>Empire BFT</td>
<td>17.0</td>
<td>70</td>
<td>12</td>
<td>15%</td>
</tr>
<tr>
<td>Other Ingredients</td>
<td>3.6</td>
<td></td>
<td>79</td>
<td>100</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100</strong></td>
<td></td>
<td><strong>79</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

The “actual proportion” would be the percentages that you can use to determine if this mixture meets your criteria for your mixture needs.

To adjust seeding rate, take your recommended rate and divide by the percent PLS:

\[
\text{Adjusted rate} = \left( \text{recommended rate} / \text{total PLS} \right) \times 100
\]

For example, if your recommended seeding rate for the above mixture is 20 lbs./acre then,

\[
\text{Adjusted rate} = \left( 20 \text{ lbs} / 79 \right) \times 100 = 25.3 \text{ lbs/acre}
\]

**Comment:** The recommended rate on the seed bag of a particular brand may already have PLS accounted for and you could use their recommendation as printed. Using PLS is mainly helpful when germination and total purity are low (below 85% PLS).