2019 Rule Change Proposal 7- Amended

**Purpose of Proposal:** Add PSU definition and working weights for Limnanthes alba, Meadowfoam to the AOSA Rules for Testing Seeds. The species will only be added to AOSA Rules Volume 1 Table 2A.

**Present Rule:** Not in the AOSA Rules for Testing Seeds Volume 1.

**Proposed Rule:**

<table>
<thead>
<tr>
<th>Pure Seed #</th>
<th>Chaffy Seed</th>
<th>Kind of seed</th>
<th>Minimum weight for Purity analysis</th>
<th>Minimum weight for noxious weed seed or bulk examination</th>
<th>Approximate number of seeds per gram</th>
<th>Approximate number of seeds per ounce</th>
</tr>
</thead>
<tbody>
<tr>
<td>41</td>
<td></td>
<td><em>Limnanthes alba</em> Hartw. ex Benth. Meadowfoam</td>
<td>22.5</td>
<td>225</td>
<td>114</td>
<td>3,238</td>
</tr>
</tbody>
</table>

**Harmonization statement:**

This species is not currently listed in the Federal Seed Act Regulations, the Canadian Methods and Procedures for Testing Seeds, or the International Rules for Seed Testing. This grassland wildflower is under small-scale cultivation. It is the source of meadowfoam seed oil. The fruit of the plant, a nutlet, is 20 to 30% oil. The oil is one of the most stable vegetable oils known and can be converted to waxes and lubricants, similar to whale oil.

**Seed unit:**

**Supporting Evidence:**

The procedures of determining the number of seeds per gram and the appropriate weights for purity analysis working sample of meadowfoam, which is not listed in Table 2A, is outlined in chapter 13 of the AOSA Rules for Testing Seeds, vol. 1. These procedures were used to determine the seed counts and the working weight in this study. Pure seeds of 37 different meadowfoam seed lots were used. Eight replicates of 100 seeds each were weighed in grams to four decimals. Variance, standard deviation and coefficient of variation (C.V.) were calculated.
According to the Rules, if the C.V. does not exceed 6.0 for chaffy seeds, or 4.0 for other seeds, the result of the determination can be calculated.

**Table 1.** Weight per grams of eight 100 pure seed units replicates of 37 seed lots of Meadowfoam (*Limnanthes alba* L.) tested in three laboratories.
<table>
<thead>
<tr>
<th></th>
<th>0.9000</th>
<th>0.8900</th>
<th>0.9000</th>
<th>0.9000</th>
<th>0.8900</th>
<th>0.8800</th>
<th>0.9500</th>
<th>0.9200</th>
<th>0.9038</th>
<th>2.43</th>
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<tbody>
<tr>
<td>36</td>
<td>1.0300</td>
<td>0.9600</td>
<td>0.9600</td>
<td>0.9900</td>
<td>0.9700</td>
<td>0.9900</td>
<td>0.9600</td>
<td>1.0100</td>
<td>0.9838</td>
<td>2.66</td>
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<tr>
<td>Mean</td>
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<td>0.8882</td>
<td>0.8854</td>
<td>0.8874</td>
<td>0.8852</td>
<td>0.8874</td>
<td>0.8861</td>
<td>0.8864</td>
<td>0.8860</td>
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</tr>
</tbody>
</table>

Avg. 2,500 seed weight = 22.15 grams

Avg. 25,000 seed weight = 221.5 grams

Figure 1. Weight per grams of purity samples of 2500 seeds of 37 meadowfoam samples tested in three labs.

References:
https://en.wikipedia.org/wiki/Limnanthes_alba
https://plants.usda.gov/core/profile?symbol=LIAL3#
http://www.capitalpress.com/SpecialSections/Seed/20180308/meadowfoams-star-on-the-rise