Orchardgrass (Dactylis glomerata)

Variety Comparison

Carrier Mill Site - Morice Forest District

Preliminary Working Plan Project Report (R8904) - November 30, 1989

A comparison was initiated of four orchardgrass varieties (Kay, Chinook, Amba, and Napier) to determine their relative vigour, hardiness, ease of stand establishment and stand longevity.

While 'Kay' has been the accepted variety for range and northern agriculture use, a variety trial under northern range conditions has not been completed to establish its superiority. In addition, it is felt (Russell, 1989\(^1\)) that the majority of our seeded cutblocks in the north remain safely under a winter snow cover during the intervals when the agricultural test plots are subject to winter kill. As the other varieties, represented as common #1, are considerably less expensive than 'Kay'; other successful varieties may lead to savings of scarce Range dollars.

Discussion and Methods

The site for the trial is a rehabilitated temporary mill site, which operated during the salvage logging of the Swiss fire south of Houston, B.C. The site was prepared for seeding by cultivation with the Ministry's winged subsoiler in the summer of 1988. The first treatments were then applied in the fall of 1988 by broadcast seeding with a trailer mounted Herd seeder driven by a five-wheel trike machine.

Treatments and applications were designed to simulate operational conditions\(^2\), although a higher seeding rate (approximately 10 kg/ha) was applied on September 7, 1988.

Each treatment was applied to a relatively uniform block of approximately 0.1 ha. Sampling then occurred within each of three treatment plots systematically assigned from within each treatment block. Sampling was conducted on August 31, 1989. Sampling subplots then consisted of twelve random hoop tosses on four transects within each treatment plot. The cover class of alsike clover was estimated within each square metre hoop. Sampling design was as follows:

4 treatments (varieties) x 3 sampling plots x 12 sampling subplots
(See illustration ahead)

\(^1\) Russell, Don, 1989, Personal Communication, Prince Rupert Regional Range Officer

\(^2\) This includes seed storage. In this case the seed was purchased locally on March 30, 1987.
ILLUSTRATION OF ORCHARDGRASS TRIAL LAYOUT

AMBA (A)

R 8903

CHINOOK (D)

KAY (B)

R 8903

NAPIER (C)

*Note: Had to move C3 to avoid influence of a willow tree.

Sampling within plots, transect orientation:

3 tosses per 4 transect lines
Descriptive Results

There was a visual difference in plant cover and vigour between the varieties with Amba, Napier, Chinook, and Kay. While an analysis has yet to be conducted, there is also an apparent difference in the descriptive results, summarized as follows (n = 36):

<table>
<thead>
<tr>
<th>Variety</th>
<th>Mean % of Cover</th>
<th>Range of Variation by plot</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Class Estimate</td>
<td></td>
</tr>
<tr>
<td>Amba</td>
<td>12.07</td>
<td>11.25 - 12.9</td>
</tr>
<tr>
<td>Kay</td>
<td>9.79</td>
<td>4.4 - 12.9</td>
</tr>
<tr>
<td>Napier</td>
<td>13.06</td>
<td>4.68 - 24.3</td>
</tr>
<tr>
<td>Chinook</td>
<td>19.63</td>
<td>10.8 - 24.99</td>
</tr>
</tbody>
</table>

Discussion

These initial growing year results do not yet suggest an advantage to 'Kay', nor do they confirm the visual difference suggested above, for 'Amba'! Rather, for plant vigour and establishment as interpreted through plant cover, Chinook (19.63%) is substantially ahead of the others. It is followed by Napier (13.06%) and Amba (12.07%) then Kay, with the lowest value of 9.79%. However the plants have not yet been through their first winter since germinating.

These are preliminary results and subject to subsequent analyses, and should not form the basis for recommendations. They do, however, suggest that we should keep an open mind about the varieties and should review our continued use of 'Kay'.

Proposed Analyses

Analyses of variance.

Suggested Review Committee

Jim Tingle, Prince George
Chris Easthope, Williams Lake

With a copy to Brian Wikeem, Kamloops.

Wayne Erickson
Range Development Agrologist
Prince Rupert Forest Region

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