has had heavier grain than either Stephens or Malcolm.

**Milling and baking**

The Western Wheat Quality Laboratory has indicated that Malcolm has good overall milling and baking quality. Flour yield is slightly less than that of Stephens; but mill score, ash content, and cookie diameters are similar.

**Production practices**

Standard soft white winter wheat production practices can be used with Malcolm. Soil testing is recommended to establish proper fertility levels. Malcolm has a seed size closest to that of Hill 81; hence, seeding rates on a poundage basis should be similar to those for Hill 81.

To establish equivalent plant populations, you can plant 10 to 15% fewer pounds of Hill or Malcolm in comparison to the larger-seeded Stephens.

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Oregon Cereal Variety Profile

**Malcolm**

A Soft White Winter Wheat

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Certified seed...
Malcolm

*A Soft White Winter Wheat*

R.S. Karow, W.E. Kronstad, S.R. James, and R.E. Brevig

Malcolm is a common soft white winter wheat released by Oregon State University in 1987. It is a semi-dwarf with stiff white straw and awned (bearded) nodding heads. It has had yields superior to those of Stephens and other common varieties when grown in certain regions of Oregon.

**Recommended areas**

Malcolm appears to be best adapted to the irrigated areas of eastern and central Oregon. The variety has performed exceptionally well in trials conducted in Madras and Powell Butte, and it's expected to replace Stephens and Hill 81 acreage in these areas. It provides different sources of disease resistance and will complement currently grown varieties.

Performance under dryland conditions has been somewhat erratic; but on average, Malcolm yields have been equivalent or superior to those of Stephens, Hill 81, and Dusty. In the Willamette Valley, Malcolm yields have surpassed those of Stephens and Dusty but are equivalent to those of Hill 81.

Malcolm is not recommended where Cephalosporium stripe is a problem or in areas where extreme winterhardiness is required.

**Performance**

Yield. Malcolm has the potential to dramatically outyield Stephens, Hill 81, and other commonly grown soft white winter wheats under the irrigated conditions of central and eastern Oregon (Madras, Powell Butte, Ontario). In other regions, yields have been equivalent to those of other commonly grown varieties.

When averaged across all years and sites of testing, Malcolm has shown a yield advantage of 4, 9, and 10 bushels over Dusty, Stephens, and Hill 81, respectively. Yield information for all sites is summarized in table 1.

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**Russell S. Karow**, Extension agronomist (cereals), Oregon State University; **Warren E. Kronstad**, professor of plant breeding and genetics, Oregon State University; **Steven R. James** and **Rod B. Brevig**, research assistants, Central Oregon Agricultural Experiment Station, Oregon State University.

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**Table 1—Yield data (in bushels per acre) for Malcolm and other commonly grown soft white winter wheats over several sites**

<table>
<thead>
<tr>
<th>Variety</th>
<th>Corvallis 1982-86</th>
<th>High yield area a</th>
<th>Low yield area b</th>
<th>Madras 1980-86</th>
<th>Ontario 1983-86</th>
<th>Pendleton 1980-86</th>
<th>Powell Butte 1980-86</th>
<th>Average over all sites c</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dusty</td>
<td>105</td>
<td>41</td>
<td>—</td>
<td>138</td>
<td>84</td>
<td>—</td>
<td>99 (20)</td>
<td></td>
</tr>
<tr>
<td>Hill 81</td>
<td>105</td>
<td>40</td>
<td>108</td>
<td>139</td>
<td>97</td>
<td>121</td>
<td>93 (48)</td>
<td></td>
</tr>
<tr>
<td>Malcolm</td>
<td>106</td>
<td>77</td>
<td>125</td>
<td>144</td>
<td>97</td>
<td>125</td>
<td>103 (41)</td>
<td></td>
</tr>
<tr>
<td>Stephens</td>
<td>101</td>
<td>78</td>
<td>118</td>
<td>143</td>
<td>98</td>
<td>113</td>
<td>94 (48)</td>
<td></td>
</tr>
</tbody>
</table>

aAVERAGE OF 6 DATA YEARS IN CORVALLIS.
bAVERAGE OF 8 DATA YEARS IN CENTRAL OREGON.
cAVERAGE OF 17 DATA YEARS OVER FOUR SITES.

---

**Table 2—Agronomic characteristics for Malcolm and other commonly grown soft white winter wheats**

<table>
<thead>
<tr>
<th>Variety</th>
<th>Winter survival a</th>
<th>Plant height (in)</th>
<th>Lodging %</th>
<th>Rust stripe/leaf b</th>
<th>Disease reactions f</th>
<th>Bu wt f (lb)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Central Oregon b</td>
<td>Corvallis c</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Daws</td>
<td></td>
<td></td>
<td>18</td>
<td>33</td>
<td>midseason</td>
<td>MR/S</td>
</tr>
<tr>
<td>Hill 81</td>
<td></td>
<td></td>
<td>10</td>
<td>21</td>
<td>midseason</td>
<td>MR/MR</td>
</tr>
<tr>
<td>Malcolm</td>
<td></td>
<td></td>
<td>10</td>
<td>12</td>
<td>early-mid</td>
<td>MR/MR</td>
</tr>
<tr>
<td>Stephens</td>
<td></td>
<td></td>
<td>11</td>
<td>32</td>
<td>early-mid</td>
<td>MR/MR</td>
</tr>
</tbody>
</table>

a1 = poor, 5 = adequate, 10 = superior under Oregon conditions.
bAverage of 8 data years in central Oregon.
fAverage of 9 data years in central Oregon.

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**Height and lodging resistance.** Malcolm is about an inch taller than Stephens but is shorter than Daws or Hill 81 (table 2). Its straw is stiff and white. Malcolm has consistently shown lodging equivalent to, or less than, Stephens and has lodging resistance superior to that of other commonly grown varieties (table 2).

**Maturity.** Malcolm is an early to midseason variety. It heads from 1 to 2 days later than Stephens but 1 or more days before Hill 81 or Daws.

**Disease resistance.** Malcolm is similar to Stephens and Hill 81 in its stripe rust reaction. All three varieties give a mixed reaction to stripe rust infections as seedlings, but adult plants are resistant to the disease. In general, Malcolm's resistance to leaf rust is superior to that of other commonly grown soft white varieties, though there have been instances when the resistance has been overcome.

Malcolm is resistant to common bunt; but like Stephens, it's susceptible to Septoria and Cephalosporium stripe. Malcolm has also shown isolated cases of severe powdery mildew infection.

Malcolm has only a fair level of winterhardiness and is not likely to be successful where extreme winterhardiness is required.

**Test weight and quality.** Malcolm test weights have been comparable to those of Stephens, Hill 81, and Daws in high-production irrigated areas—test weights average around 55 lb per bushel. In lower-producing dryland areas, Malcolm test weights have been above average. In western Oregon, Hill 81
has had heavier grain than either Stephens or Malcolm.

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**Oregon Cereal Variety Profile**

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