

## Oat Seeding Rates and Hay Yield/Quality - an important link!

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### **Key Points**

Know your average grain weight and ideal population.

Both seeding rate and plant population play a major role in hay yield and quality.

Grain weight of hay oat varieties can vary significantly from variety to variety and seasonally.

Measure the seed weight of the planting seed each year and target the optimum seeding rate that will maximize your financial returns.

It is common for hay producers in Australia to plant their hay crops at 100kg per hectare. The chances of these hay crops achieving acceptable yields and quality specifications will depend on the size of planting seed and the nutrition of the paddocks.

Crops with a high seeding rate, high plant density, generally have high yield potential, plants with thinner stems and superior hay quality. Crops with low plant density generally

have plants with thicker stems with lower hay quality and yields.

To improve hay yields and quality should growers be more prescriptive about the sowing rates they use to improve their hay returns?

The National Oat Breeding Program recently completed an analysis on the seed size of various hay oat varieties from the 2014 to 2018 seasons. A summary of these results is provided in Table 1.

**Table 1. Average seed weight of hay oat varieties and their corresponding sowing rates to achieve 250, 300 and 350 plants per square metre.**

Oat Varieties	2014-18 1000GRWT(g) OVERALL	Target plant population (plants/m <sup>2</sup> )		
		250plts kg/ha	300plts kg/ha	350plts kg/ha
BRUSHER	33.6	84	101	118
CARROLUP	33.3	83	100	117
FORESTER	32.1	80	96	112
KANGAROO	33.6	84	101	118
KOORABUP	32.3	81	97	113
MULGARA	35.1	88	105	123
SWAN	37.2	93	112	130
TAMMAR	30.3	76	91	106
TUNGOO	30	75	90	105
WILLIAMS	31.4	79	94	110
WINJARDIE	32.7	82	98	114
WINTAROO	34	85	102	119
YALLARA	32.9	82	99	115

Table 1 identifies the large variability in seed size between varieties. Mulgara on average has the largest seed size as demonstrated by its 1000 seed weight being, for example, 3, 5 and 17% larger than Wintaroo, Carrolup and Tungoo varieties respectively.

The most desirable sowing rate for a hay crop also depends significantly on the rainfall and soil fertility into which the crop is sown.

Agrilink Agricultural Consultants in South Australia have created the following guide (Table 2) to the target plants per square metre by rainfall (winter and spring rainfall dominant regions) and soil fertility.

**Table 2. Target plants per square metre by rainfall (winter and spring dominant regions) and soil fertility.**

Rainfall	Soil Nitrogen Fertility		
	High	Medium	Low
<350mm	120 – 160	150 – 180	150 – 200
350 – 425mm	160 – 200	180 – 220	200 – 240
425 – 500mm	200 – 220	220 – 250	240 – 280
>500mm	210 – 230	250 – 280	250 – 300

Source: Agrilink Agricultural Consultants

To improve your chances of growing hay crops with higher hay yields and quality, AEXCO encourages you to measure the 1000 seed weight of your planting seed each year. After seeding, check to see if you achieved your target plant populations.

For more information please refer to the Publication – ‘Producing Quality Oat Hay’ which is available for free on the [AEXCO](#) web site.

Formula for calculating seed rates to achieve a target plant population per square metre			
<b>A = 10 x B x C</b>			
Where:	A = unknown kg/ha,	B = average weight of one seed	C = target number of plants per square metre
Example: Mulgara	?	35.1g per 1000 seeds	300 plants/m <sup>2</sup>
<b>A = 10 x 0.0351 x 300 = 105.3kg/ha</b>			