GUIDE FOR GROWERS

TO RELATE FERTILITY AND BUSH AGRONOMIC PRACTICES TO YIELD IN BLACKCURRANTS

### by Murray D Craighead - Nutrient Solutions Ltd

Crop nutrient usage - Nutrients are required to produce fruit and to grow new shoots for next season.

Table 1. Nutrient removal for a 10 - 12 tonne crop

	Nitrogen	Phosphorus	Potassium	Sulphur
Plant	60	10	20	7
Fruit	2-2.5	0.5	3	0.2
Total	80-85kg	15kg	50kg	9-10kg

In a mature crop the main requirement is for Nitrogen. To meet the plant and fruit removal for a 10-12 tonne crop requires 100-120kg/ha of Nitrogen to be available from soil (AMN test) and fertilizer inputs.(Fig.1)

Figure 1. Yield vs Total (soil + fert) N - best sites - Three years data 2005-2007

$R^2 = 0.3248$
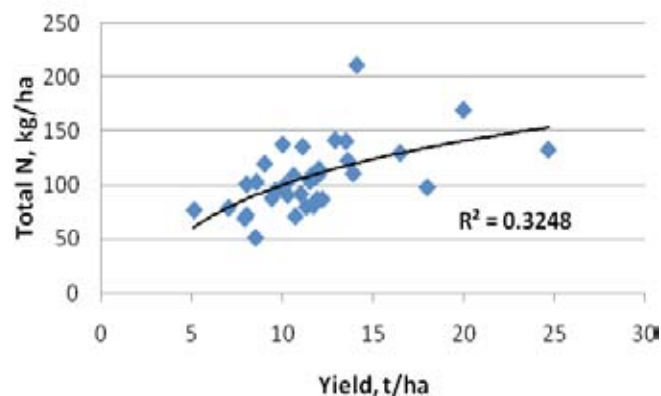
What constitutes a good bush - Regular light pruning is required to maintain healthy bushes and newer (one and two year) cane. Better yielding bushes have intermediate growth habits.

1. **Bush Height** - intermediate sized bushes tend to produce the best yields. There is no advantage to be gained by having Ben Ard of Magnus over 150cm in Spring or 160cm mid season. (Ben Rua 140 and 150 cm respectively.

2. **Bush density** - in winter, look under the bush and across the rows.
   If four or more rows can be seen, then the crop is too thin. If only two rows can be seen the crop is too thick. Best results = three to four rows.

Too thin	Optimum	Too thick
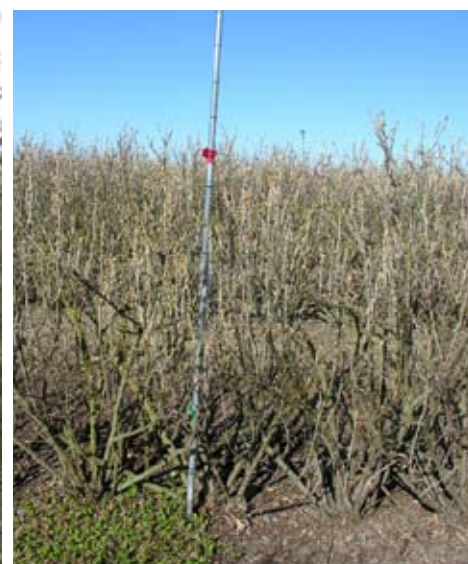
3. **Light interception** - if more than 60% of light is seen through the middle of the bush in winter the crop is too thin. (Fig.3) Best yields are with crops where 45-55% of light is intercepted. (See photos below)

60% light but young cane

50% light good cane

<40% light reasonable cane but too bulky

4. **Old vs new growth** - Bushes with insufficient new growth (see the amount of new wood in Fig. 3), or excessive old growth (as in some of the following photos), are likely to yield lower. A balance is needed between new upper growth that contributes to this year's yield and new basal growth that contributes to future yield.

In winter, score the amount of new top growth (i.e. that generated last season) on a 0-10 scale (0 = poor, 10 = exceptional). Also score the amount of new basal growth (0-10) score. Add the two to give a 0-20 score.

Ben Ard and Magnus scores of >12 will have more consistent average yields (Fig. 4).

As Ben Rua are more ungainly plants, scores of >10 are likely to be adequate.

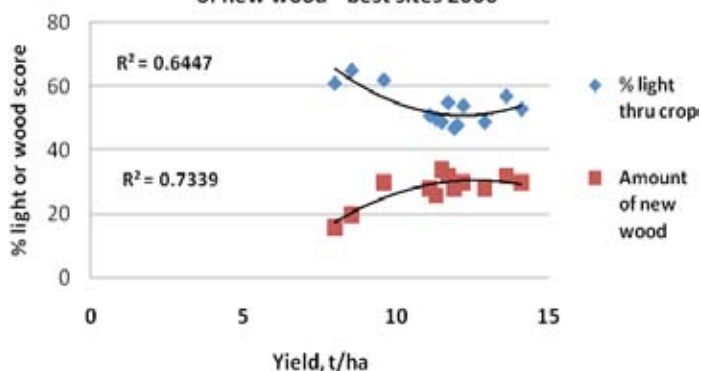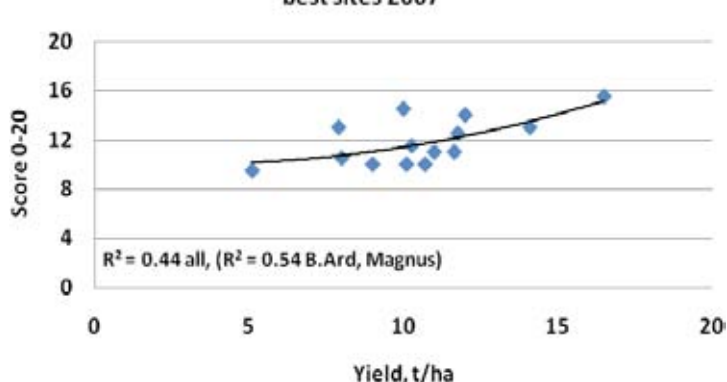Figure 3. Yield vs light seen through the crop or amount of new wood - best sites 2006

$R^2 = 0.6447$
$R^2 = 0.7339$

% light thru crop

Amount of new wood

% light or wood score

Yield, t/ha

Figure 4. New tip and basal growth scored late winter - best sites 2007

$R^2 = 0.44$ all, ($R^2 = 0.54$ B.Ard, Magnus)

Score 0-20

Yield, t/ha

Low scores indicate that new cane needs to be generated with nitrogen and/or that excessive old cane may need to be pruned out.

It is important to have a balance of new and previous season's wood as well as some older wood. All wood, irrespective of age, needs to be strong and healthy.

Regular light pruning promotes mixed age wood, resulting in more consistent yields.

BEN ARD

Score = 7 - 8

Score = 5 - 6

Score = 3 - 4

Score = 7- 8 good balance surplus new wood

Score = 6 - 7 reasonable wood balance

Score = 4 surplus old growth limited new growth

Score = 16
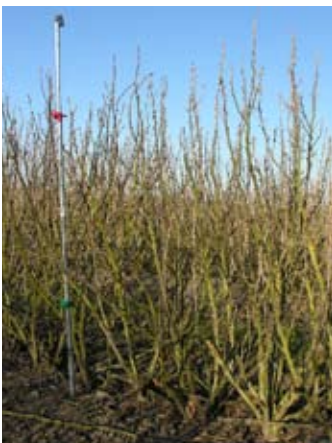tip = 8 - 9
reasonable balance
base = 7 - 8

Score = 15
good balance post pruning
tip = 7   base = 8

Score = 11
tip = 6
base = 5 base dense with low new wood

Strong wood = regular pruning and good fertility = better overall yields

Score = 10
tip = 5 - 6
base = 4 - 5 old wood

Score = 8
tip = 5 too tall
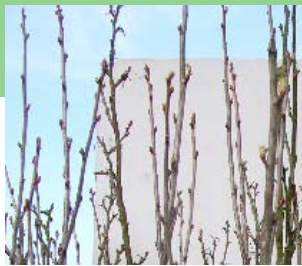base = 3 excessive old wood, prune

Score = 7
tip = 4
base = 3 overdue for pruning

Weak wood = lower overall yields

MAGNUS

Score = 7 - 8

Score = 6

Score = 4 - 5

Score = 7 - 8 good
balance of wood age

Score = 6 high new wood
low next season's fruiting
wood

Score = 4 little new wood

Score = 14
Tip = 8 + Base = 6
Good balance

Score = 13
Tip = 8 + Base = 5
good 1 year wood needs
more new wood

Score = 10 - 11
Tip = 6 + Base = 4 - 5
has some new wood but
dense

Score = 7
Tip = 3 - 4 + Base = 3 - 4
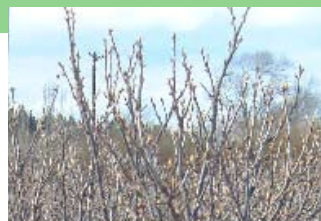overdue for pruning
little new wood

BEN RUA

Score = 15 good balance

Score = 7 - 8

Score = 7 - 8

Score = 5 - 6

Score = 5 - 6 dense but
some new wood

Score = 2 - 3

Score = 4 lack of new wood