Planning the summer fallow

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Fallowing should be an integral part of the cane production cycle. The fallow period provides a break from the cane monoculture and has important soil health benefits. However, the strategy you use needs to be one that suits your farm management and your farm.

In any case, early spring is the perfect time to plan for the 2015 planting season. The first step in planning your fallow is to decide which blocks will be fallowed. Once this decision has been made, the type of fallow can be chosen.

There are four main options available, and your choice will be dictated by the situation in each block:

- **Bare, cultivated fallow**
  - Positives: Opportunity to conduct major earthworks. No delay in planting at the end of the wet season.
  - Recommended situations: Only recommended when extensive earthworks need to be done.

- **Bare, sprayed fallow**
  - Positives: Opportunity to control difficult weeds like nutgrass with inexpensive chemicals. Beds can be formed prior to the wet season and kept clean ready for an early plant.
  - Negatives: Potential for soil erosion, but because the soil is undisturbed it is not as risky as a cultivated fallow.
  - Recommended situations: Where specific weeds are of concern.

- **Weedy fallow**
  - Positives: Easy to manage.
  - Negatives: Doesn’t provide an effective break from pests and diseases, especially if there is volunteer cane. Doesn’t control weed problems.
  - Recommended situations: Weedy fallows are not recommended.

- **Managed legume fallow**
  - Positives: Different crop type provides a good break from cane pests and diseases (except root knot nematode). Adds nitrogen to the soil through the fixation of atmospheric nitrogen. If taken to grain, provides an additional source of income.
  - Negatives: Requires commitment and management to do it well. Crop residues can be difficult to manage at cane planting time. Growing a grain soybean crop delays cane planting until later in autumn at the earliest.
  - Recommended situations: In all other situations, a well-managed legume crop will provide the greatest benefits.
The benefits of legumes as a fallow

Fallow legumes have been shown to have a positive impact on the farming system however there are a few aspects to be considered, including:

- **Which legume will you plant:** soybeans, cow peas, lablab, peanuts or mungbeans? There’s more information in this edition in the next article, ‘Legumes – the pros and cons’.
- **When will you cultivate the fallow:** before or after the legume crop?
- **Will you take the legume crop through to grain or grow it as a cover crop?**
- **How will you manage the legume residue:** cultivate it in at the end of the crop, or plant cane directly through the standing stubble?
- **When do you want to plant your cane:** autumn or spring?

Establishing a successful legume fallow

As with all farming decisions, there are no recipes.

The table below shows two common options used for the establishment of legume fallows.

These options are to cultivate before planting the legume or to direct drill the legume through the cane trash blanket.

<table>
<thead>
<tr>
<th>Option 1: Planting legumes into cultivated preformed beds</th>
<th>Option 2: Planting legumes directly into existing cane beds through the trash blanket</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sequence of operation</strong></td>
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</tr>
<tr>
<td><strong>Before the wet season</strong></td>
<td><strong>Before the wet season</strong></td>
</tr>
<tr>
<td>1. Cane areas to be fallowed are harvested mid-season</td>
<td>1. Cane areas to be fallowed are harvested green late in the season</td>
</tr>
<tr>
<td>2. Blocks are soil tested and ameliorants such as lime are applied, if required</td>
<td>2. Cane is killed using a herbicide</td>
</tr>
<tr>
<td>3. Blocks are cultivated prior to the wet season</td>
<td>3. Legumes are direct drilled through the cane trash into the old cane mounds</td>
</tr>
<tr>
<td>4. Beds are formed</td>
<td>4. Selective herbicides are used to control grasses and cane in the legume crop</td>
</tr>
<tr>
<td>5. Legumes are planted into beds</td>
<td></td>
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<tr>
<td>6. Weeds in the legumes are managed with herbicide sprays</td>
<td></td>
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<tr>
<td><strong>After the wet season</strong></td>
<td><strong>After the wet season</strong></td>
</tr>
<tr>
<td>1. Legumes sprayed out or harvested</td>
<td>1. Blocks are soil tested and ameliorants such as lime are applied, if required</td>
</tr>
<tr>
<td>2. Cane is planted into the beds with a limited amount of tillage</td>
<td>2. Legume crop and trash blanket are incorporated into the soil with cultivation</td>
</tr>
<tr>
<td>3. Cane is planted in autumn, if possible</td>
<td>3. Cane is replanted, often in the spring</td>
</tr>
<tr>
<td><strong>Benefits of the system</strong></td>
<td><strong>Considerations of the system</strong></td>
</tr>
<tr>
<td>• Allows cane to be planted early (autumn), producing bigger plant cane yields (trials in the Burdekin region have shown a 30 t/ha yield increase due to an early plant)</td>
<td>• As all of the land preparation takes place after the wet season, it is often not possible to complete an autumn plant (delayed planting leads to lower cane yields)</td>
</tr>
<tr>
<td>• Less work to do at planting time as most of the soil preparation has already been done</td>
<td>• Soil ameliorants are often applied after the legume crop and therefore give no benefit to the legume crop</td>
</tr>
<tr>
<td><strong>Considerations of the system</strong></td>
<td></td>
</tr>
<tr>
<td>• Difficult to incorporate the green cane trash blanket directly after harvest</td>
<td></td>
</tr>
<tr>
<td>• Burning of the trash results in a loss of valuable soil organic matter</td>
<td></td>
</tr>
<tr>
<td>• The soil is in a cultivated state during the wet season and more prone to erosion</td>
<td></td>
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<tr>
<td>• Weed control in fallow legumes is reliant on chemicals</td>
<td></td>
</tr>
<tr>
<td>• Fallow blocks need to be harvested mid-season to allow time for land preparation</td>
<td></td>
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</tbody>
</table>
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Which option best suits your farming system?

- Both options have benefits by including a legume in the system.
- If you grow a soybean crop, and plan to take it to grain, it is unlikely that you will be able to plant cane early as the soybean crop will most likely be harvested in May, leaving little time before the winter to plant cane.
- If you have a controlled traffic farming system you may be able to plant the legume crop through the cane trash blanket, and then using either zero or reduced tillage, replant the cane through the legume residue. Using this system you could capture the benefits of the trash blanket on the legume as well as the benefit of an early cane plant.

Above: Applying banded lime onto preformed beds following a sprayed out soybean crop. A cropping system where most of the cultivation is completed before the fallow legume crop was planted. After the lime application the beds were reformed and cane was planted.

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In this week’s CaneClip Phil Patane speaks about harvesting management strategies.

We also give you the latest on Canegrubs and treatment options, results from our recent precision agriculture survey, and focus on a number of research projects in the area of soil health.

We welcome contributions and feedback at sra@sugarresearch.com.au or 1300 SRA 111 (1300 772 111).

In this issue:
- CaneClips - Harvesting Management Strategies
- 2014 a Year for Canegrubs
- Your SRA at Work
- SRA in the Field

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