

# Challenges in organic forage seed production

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## ABSTRACT

The demand for organically produced forage seed is increasing rapidly as organic livestock farming expands. EU regulations stipulate that from 1 January 2004 organically produced seed must be used in organic production systems. The production of forage seed in an organically acceptable manner to meet the current Seed Certification standards is a significant challenge to the seed producer. Conventional systems of grass seed production use inorganic nitrogen applied at specific stages of crop development and appropriate use of herbicides to produce high quality seed, reduce weed content and minimise seed cleaning costs. The development of organically acceptable methods of weed control and techniques of applying nitrogen at precise stages of crop development are the most important challenges for the organic grass seed producer. Current research on organic seed production of forage grasses is outlined.

*Keywords: organic seed; forage grasses and legumes; weed control and nitrogen supply*

## INTRODUCTION

Organic systems of forage production for feeding ruminants are based on a grass plus legume based sward with regular reseeding (Lampkin, 1990), placing a high demand on seed of appropriate varieties. At present the seed of forage species used by organic farmers is produced conventionally using inorganic fertiliser, herbicides, pesticides and fungicides to produce economic seed yields and maintain the seed quality and purity required by the UK Seed Certification Scheme (Burgon *et al.*, 1997). From the 1st January 2004, seed for use in organic production must be produced organically. For forage seeds this poses significant technical challenges both to the seed grower and the seed industry that must be overcome if organically produced forage seed of the appropriate varieties is to be available at a reasonable price and quantity for the organic sector. High yield of quality seed depends upon good establishment, effective weed control, appropriate levels of crop nutrients, as well as efficient harvesting and seed cleaning. Research at IGER is focusing on several areas critical to the successful organic production of perennial, Italian and hybrid ryegrass seed within the UK.

## WEED CONTROL

Conventional grass seed crops are sown under a cover-crop in spring or pure sown in Autumn (Boelt, 1997) to ensure an appropriate plant density and minimise weed control problems. Recent experiments on organic seed crops of perennial ryegrass have shown that mechanical weed control can be successful for control of some weed species but needs wide seed rows that can reduce seed

yields (Borm, 1995). However, where grasses are sown with a companion forage legume as a source of nitrogen, information on weed control is lacking.

## NUTRITION OF SEED CROPS

Conventional grass seed crops require mineral nitrogen at precise stages of crop development to regulate the balance between vegetative and reproductive growth, stimulate flowering, ensure good seed filling and produce high seed yields. In organic systems, nitrogen can be supplied by application of animal manure or by using forage legumes to fix atmospheric nitrogen, either by relying on the residual N in the soil or by using forage legumes as companion crops (Aamlid, 1999). Unfortunately, little is known of the response of different grass species to such system or the most appropriate companion legume for the different grass species.

## ORGANIC SEED RESEARCH AT IGER

Research is concentrated on several specific areas of organic grass seed production. These include:

- Development of appropriate mechanical weed control systems.
- Integration of mechanical weed control with the management of grass seed crops with and without companion legumes.
- The use of companion legumes to suppress weeds.
- Quantifying the effectiveness of animal manure and companion legumes to supply nitrogen to grass seed crops.
- Identification of appropriate legumes as companion crops for grass seed crops.
- Effect of organic production systems on seed yield and quality
- Comparison of seed crop development, seed yield and quality in experimental systems and commercial organic grass seed crops.

The results of this research will assist the development of organic forage seed production systems and ensure the supply of forage seed of appropriate varieties to the organic sector.

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