ISSN 1038-3549

International Herbage Seed Group

Newsletter

Number 37 **July 2004**

IHSG

President:
Dr. William C. Young III, PhD
Professor and Extension Seed Production Specialist,
Department of Crop & Soil Science
Crop Science Building, Room 127
Oregon State University
Corvallis, OR 97331-3002
Phone: 541-737-5859
Fax: 541-737-1589
E-mail:William.C.Young@orst.edu

Newsletter Editor:
Dr Athole H. Marshall
Institute of Grassland and Environmental Research, Plas Gogerddan
Aberystwyth, SY23 3EB
United Kingdom
Phone: +44 1970 823171
Facsimile: +44 1970 828357
E-Mail: athole.marshall@bbsrc.ac.uk

Apologies from the Editor

Dear Readers,
Apologies for the delay in producing this latest newsletter. Pressure of work, publications, grant proposals etc. have contributed to this. Hopefully we are back on track and the newsletter will be coming out more frequently- its a Promise..

Remember - its your newsletter so keep the articles coming in, all contributions are welcome.

.
****
****
****

Contents

President's Column

Welcome to the third issue (No. 37) of the electronic-only edition of the International Herbage Seed Group newsletter. Again, those reading it have received notice via e-mail that it was recently posted on the IHSG web site (http://cropandsoil.oregonstate.edu/ihsg/default.htm). Regrettably, it has been one year since we posted No. 36 in July 2003; however, our goal is to do better in the future.

Nevertheless, there is much that we can take pride in as an organization over the last 12 months. Foremost on this list would be the very successful 5th International Herbage Seed Conference held last November in Australia. A great deal of the credit for this is due to Dr. Don Loch, who was chair of the organizing committee. Don's tireless attention to every detail was evident throughout the conference and the post-conference tour. If you could not attend and would like to purchase a copy of the proceedings there are still a few left. See the IHSG web site site (http://cropandsoil.oregonstate.edu/ihsg/default.htm) for details on ordering a copy.

I want to encourage each of you to read carefully the minutes of the IHSG's business meeting, which was held on November 25, 2003 at the Gatton Campus of the University of Queensland. (The minutes are included in this issue of the newsletter.) A number of important matters were discussed, as well as the election of officers for 2005-09 term. Congratulations are due to Dr. Birte Boelt, who will assume the presidency following the International Grassland Congress in June of 2005. In addition, Christian Haldrup was elected to serve as Secretary/Treasurer of IHSG, and Dr. Athole Marshall will continue as Newsletter Editor.

At the business meeting we also discussed the possibility of establishing membership fees, and the need for an IHSG constitution. A draft copy of a proposed constitution is offered later in this newsletter for your consideration. Members' comments on any of the articles proposed in this draft would be much appreciated.

Immediately following the conference there was considerable discussion in regard to seeking a plenary session for herbage seed production inside of the International Grassland Congress venue, or whether to arrange a post-congress IHSG workshop somewhere in the region. Following a lot of input and consideration, we decided to hold a workshop after the IGC (June 26 - July 1, 2005 in Dublin Ireland) and its post-congress satellite workshops. The site for the IHSG workshop will be somewhere in the South of England. A planning committee is developing the venue, which is expected to include a tour of the local seed production areas. Additional details on the workshop are also found later in this newsletter.

We've also recently updated the IHSG membership directory on our web site. Presently, we are a group that numbers 222 persons from 37 different countries. The names of all persons who did not respond to our call for registering themselves online and providing an e-mail address have now been deleted. Thus, I believe this group comprises only "active members." Also, those members present at the IHSG business meeting held in Australia last November voted to remove e-mail addresses from the information we have posted in the membership directory on our web site. Thus, we have honored this request, which was to avoid unsolicited e-mail or being added to e-mail distribution lists that we'd rather not be on. However, all e-mail addresses have been maintained for electronic distribution of IHSG-related announcements.

Lastly, we are pursuing ideas for how our organization can be more inclusive of those researchers, producers and marketers of warm-season herbage seed crops. There was a lot of interest nurturing this idea during the conference last fall. If we're truly and international organization, we must have active membership from the tropical countries. However, we need to be able to better address their needs and to encourage them to want to become IHSG members. Please give this subject some consideration… I would welcome ideas that any of you would like to share with me. Please e-mail me any time at: william.c.young@oregonstate.edu.

Bill Young

****

****

****

The Constitution of the International Herbage Seed Group

ARTICLE I – Name

The name of this organisation shall be the International Herbage Seed Group (IHSG).

ARTICLE II – Objects

The objects of the IHSG are:

(a) To encourage co-operation and communication among those involved with herbage seed in any capacity.

(b) To encourage the interchange of herbage seed research results and publications.

(c) To promote the interchange of ideas and information by means of a Newsletter, meetings and conferences.

ARTICLE III – Members

(a) Any person or organisation who/which supports the objects of the IHSG shall be eligible for membership in the IHSG, and shall become a member upon completion of the IHSG's application form and payment of the annual subscription.

(b) The annual subscription shall be decided by the Management Committee and shall be payable on or before March 1 of each year.

(c) The Secretary/Treasurer shall notify members who are in arrears for their annual subscription by more than three months, and those members shall forfeit membership on 1 October if their subscription has not been paid. Reinstatement shall be permitted only after all subscription arrears have been paid.

(d) A member shall be entitled to resign by forwarding written notice to the Secretary/Treasurer.

ARTICLE IV – Officers

(a) The officers of the IHSG shall be the President, Vice-President and Secretary/Treasurer.

(b) The officers shall perform the duties described in the parliamentary authority and this constitution.

(c) The officers shall be elected by ballot at a General Meeting of the IHSG to serve a term of four years and until their successors are elected.

(d) The Vice-President shall automatically become the President following the completion of the term of the incumbent.

(e) No person shall hold office if they are not a member of the IHSG.

ARTICLE V – Management Committee

(a) The Management Committee of the IHSG shall consist of the President, Vice-President, Secretary/Treasurer and IHSG Newsletter Editor.

(b) The Management Committee shall co-opt a representative of the country hosting the next IHSG Conference to serve on the Committee until such time as the Conference has been held. In addition, the organizing chair of the most recently held Conference will assist the Management Committee upon request.

ARTICLE VI – Meetings

(a) A General Meeting of the IHSG shall be held once every two years on a date to be fixed by the Management Committee.

(b) A Special General Meeting may be called at any time at the discretion of the Management Committee.

(c) A quorum shall consist of not less than ten members present, of which five must be non-committee members.

ARTICLE VII – Finance

(a) Monies belonging to the IHSG shall be deposited in such bank or investment in such manner and under such conditions as the Management Committee may decide.

(b) The funds of the IHSG shall be applied solely to the stated objects of the IHSG.

(c) The Secretary/Treasurer shall prepare bi-annual accounts for presentation at the General Meeting. The bi-annual accounts are to be audited by a person qualified to undertake such audit who has been appointed by the Management Committee.

ARTICLE VIII – Parliamentary Authority

The rules contained in the Modern Edition of *Robert's Rules of Order* shall govern the IHSG in all cases where they are not inconsistent with this Constitution and any special rules of order the IHSG may adopt.

ARTICLE IX – Amendment

This Constitution may be amended at any General or Special General Meeting of the IHSG by a two-third majority vote, provided that previous notice of the amendment(s) was given to all members at least 30 days in advance.

Minutes of the IHSG Business Meeting – November 25th, 2003

Venue:- Campus Club, University of Queensland Gatton Campus – Gatton, Australia.

The meeting was opened and chaired by the President of IHSG, William C. Young III, at 20.30 hours, and was attended by the majority of delegates attending the 5th IHSG Conference (full register not taken). An agenda suggested by the Chairman was adopted.

a) Election of Officers:- Discussions took place to decide how to select the new Board, taking into account the JASP Editorial Board. Following a proposal by John Hampton, seconded by Lloyd Nelson, it was **agreed** that Bill Young would continue as President until the I.G.C. in 2005. A further proposal by Henry Nadja, seconded by John Hampton, was **passed** unanimously that Birte Boelt would take over as President at that time. Following a proposal by Alex Burgon, seconded by John Hampton, Christian Haldrap was unanimously **elected** as Secretary/ Treasurer of IHSG. A further proposal by Bede McCloy, seconded by Phil Rolston, was **passed** unanimously for Athole Marshall to continue as Newsletter Editor. It was then agreed that the fourth member of the Board be a representative of the host nation for the following International Herbage Seed Conference.

b) Newsletter:- Athole Marshall requested articles for the email edition of the Newsletter. Birte Boelt suggested regional assistants for Athole Marshall, and Don Loch suggested themes on papers submitted (e.g., Organic Seed Production). The above suggestions were taken on board, and the President requested that we try all means to enable the Newsletter to be printed every 6 months.

c) Website:- All delegates agreed that the website worked well, and special praise was given to Bill Young for his communications regarding the 2003 Conference. It was then **agreed** that email addresses would no longer be printed on the Membership List.

d) IGC/IHSG – 2005:- It was **agreed** that a Workshop be held around the time of the IGC as in previous years, and Athole Marshall agreed to contact the Conference Committee to see how this could be slotted in. It was also **agreed** that it was important to keep a "seed" session in the IGC (Athole Marshall to follow up on this), and that following the IGC there would be an IHSG workshop in the South of England.

e) IHSC-6:- Considerable discussion was had in regard to possible locations for a 6th International Herbage Seed Conference in another four years (2007). Proposals were offered by Trygve Aamlid and Birte Boelt for a Norway-sited conference followed by a seed production tour in Denmark. A second possibility, offered by Jean Hanson, was to hold the conference at ILRI in Addis Ababa, Ethiopia. The idea of placing the next conference in a developing country had significant support, and was followed by a third possibility proposed by Murray Hill: Thailand. A "straw vote" on these three possible locations showed favor for the Ethiopian venue. The Board agreed to gather additional input and cost estimates prior to committing the Organization to planning a 2007 conference at given site.

f) Finances/Membership Fees:- A short discussion was held to decide on Membership Fees, and following a proposal by John Hampton, seconded by Bill Welling, a motion was **passed** that the incumbent Board will decide such fees.

g) IHSG Constitution:- The President spoke of the need for a constitution for the Organization, at which point Alex Burgon produced a copy of the 1979 articles (Revised 1985) which were distributed after the Easter School held at Sutton Bonnington in September, 1978. Whilst these were not generally accepted as a "full constitution", it was **agreed** that this paper would be used by the incumbent Board to draft a new IHSG Constitution. John Hampton offered to draft a document for the Board's review.

h) New Members:- The meeting **agreed** to continue looking for new members, with possibly a reduced fee for newcomers (to be decided by the Board as per **e)** above. The possibility of website links is also to be considered.

i) Corporate Sponsorship:- The Organization will continue to look for sponsors, but it was generally felt that this would be more successful if tied to specific Conference.

j) J.A.S.P.:- It was **confirmed** that the Journal has now ceased. John Hampton offered to investigate the possibility of placing scientific papers in other Journals.

k) Other Business:- With the payment of Royalties due on the IHSPRG/CABI Seed Production publications being unclear, Bill Young offered to contact CABI to see what is happening.

Phil Rolston thanked Don Loch and the organizing Committee for their excellent work in arranging the Conference, and for the work put in by Bill Young, together with the Newsletter work carried out by Athole Marshall.

There being no further business, the meeting closed at 23.12 hours.

Alex Burgon

Organic forage seed production in Finland

Markku Niskanen
MTT Agrifood Research Finland, South Ostrobothnia Research Station, Alapääntei 104, FIN-61400 Ylistaro, Finland. Markku.niskanen@mtt.fi

Abstract

Interest in organic farming began to increase in Finland when it joined the European Union in 1995. The total organically farmed area increased rapidly after that and in 2002 it was 156, 692 ha, 7 % of the total arable land. Timothy (*Phleum pratense*) and meadow fescue (*Festuca pratensis*) are the most cultivated grass species both in conventional and organic farming. During recent years interest has developed among organic farmers in cultivating tall fescue *(Festuca arundinacea*) Red clover (*Trifolium pratense*) and white clover (*Trifolium repens)* are the most important forage legumes in Finland. The supply of organic seed has been limited and for many varieties there is no organically produced seed available. New varieties are needed as soon possible for the organic sector as well as for the conventional sector. Because of lower yields organic seed is more expensive than conventionally produced seed. The high seed price and limited seed supply has dampened interest among organic farmers to use organic grass seed. There is therefore an urgent requirement to increase the effectiveness of organic herbage seed production in order to be able to provide seed at competitive prices. The main challenges in certified organic herbage seed production in Finland are the control of weed infestation to meet purity standards, timely application of sufficient nitrogen fertilizer for grasses, harvesting forage legumes without using desiccants and improved seed cleaning technology.

Key words: organic forage seed production; timothy; meadow fescue; red clover

Introduction

Interest in organic farming began to increase in 1995 when Finland jointed to European Union. Finland's agricultural income support system in 1995-2002 was based on payments made in accordance with the common agricultural policy (CAP). Agri-environmental support co- financed by the EU and Finland, has a major influence on expansion of organic farming.

The total cultivated area in Finland was 2.2 million ha in 2003 (Anon 2003a). This is increased by little each year after membership. In 1994 the total organically farmed area was approximately 26, 000 ha, 1.2 % of the total arable land (Anon 1998). The total organically farmed area has increased substantially and by 2002 it was 156, 692 ha representing 7.0 % of the total arable land (Fig 1).

The number of farms covered by the organic farming inspection system in 2002 was 5071 (Anon 2003). Average organic farm size was 30.9 ha in 2002, rising from 17.2 ha in 1994. The total number of farms in Finland has decreased rapidly during EU membership: there were 114, 510 and 75, 474 farms in 1994 and 2002 respectively. Simultaneously average farm size increased from 17.3 ha to 30.0 ha (Anon 2003a, 1998)

Volume of organic forage seed production in Finland

Grasslands play a key role in crop rotation in organic farming. The entire crop rotation system is based on grasses and particularly on forage legumes. The forage plants significantly affect soil structure, weed flora and soil nutrient level. Finnish organic farmers cultivate the grasses and legumes for forage

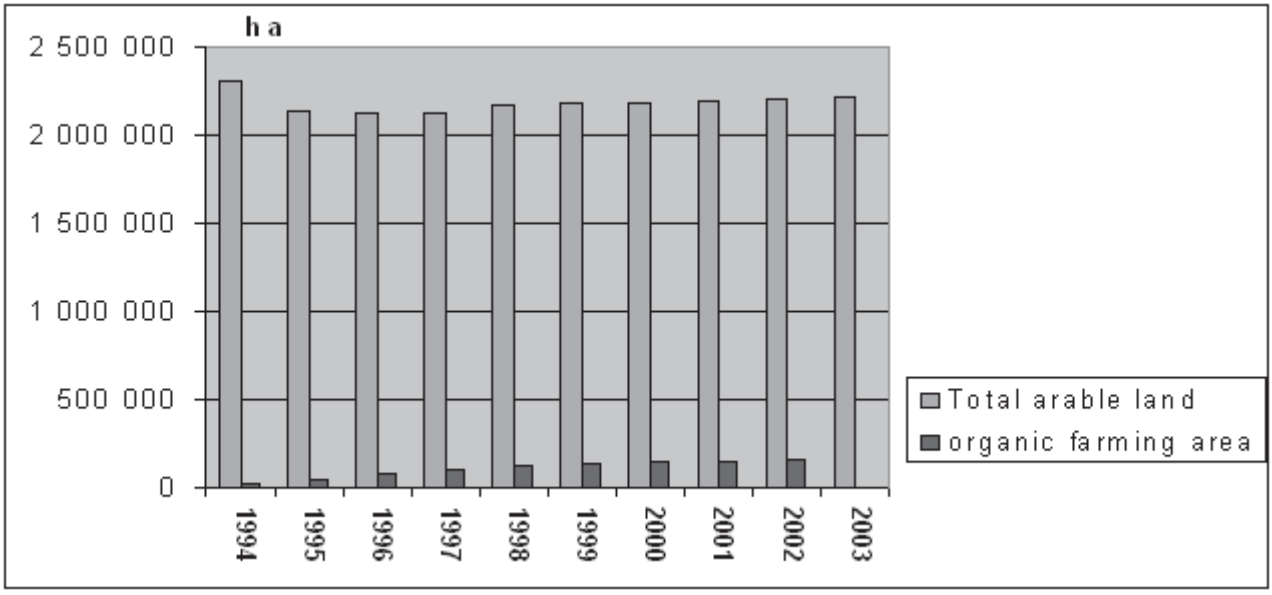

Fig 1. Total arable land and organic farming area in Finland 1994-2003 (Anon 2003a,1998)

and/or green manure. A little over 50 % of the total arable land in organic farming is cultivated grass or green fallow.

Current legislation dictates that swards in organic production have to be established using organically produced seed. During the transition period it was legal to use conventionally produced seed if organically produced seeds were not available. Organically produced seed was to be made available after 31.12.2003. That requirement has been a big challenge to the entire seed industry, including the organic seed producers. For forage production it is of utmost importance that organically produced seed of main species and varieties grown in Finland is available.

Timothy (*Phleum pratense*) and meadow fescue (*Festuca pratensis*) are well adapted to northern European conditions. Both species are very winter hardy and are consequently the most cultivated grass species in Finland. Timothy is suitable for mixtures with red clover and meadow fescue and therefore it is very suitable for organic farming. Interest in cultivating tall fescue (*Festuca arundinacea*) has increased among organic farmers because it produce abundant dry matter yield. Tall fescue variety Retu was specifically bred for Finish growing conditions.

Seventeen varieties of timothy and nine varieties of meadow fescue are included on the Finnish official variety list. Most timothy varieties on the list were bred in Finland. Three varieties came from Sweden and two varieties from Norway. Meadow fescue has also been bred in Finland (4 varieties), in Sweden (2 varieties) and in Norway (2 varieties). One variety originates from Holland (Anon 2004)

Perennial ryegrass *(Lolium perenne*) and cocksfoot (*Dactylis glomerata*) are little grown in Finland. Neither species have particularly weak winter hardy and therefore only suit southern Finland. Three varieties of ryegrass and three varieties of cocksfoot were included on the official variety list of Finland (Anon 2004)

Red clover (*Trifolium pratense*) and white clover (*Trifolium repens*) are the most important forage legumes in Finland. In organic farming white clover is particularly cultivated in pasture. Other clovers (*Trifolium hybridum, Trifolium respimatum, Trifolium subteraneum*) are cultivated a little in organic farming for green manure.

The official variety list of Finland includes nine red clover varieties. Four varieties of red clover originate from Finland and three come from Sweden. Two varieties of red clover were bred in Estonia at Jögeva plant breeding institute. One variety of white clover and one variety of alsike clover are included on the Finnish variety list (Anon 2004)

The total seed production area of timothy in 2001 and 2002 was 7189 ha and 7681 ha of which 270 ha and 270 ha hectares were under organic farming. In 2003 organic timothy seed was produced on 322 ha. In 2002 the seed production area for meadow fescue was 1668 ha for conventional farming and 21 ha for organic farming. In 2003 organic meadow fescue seed was produced on approximately 40 ha. Seed production area for tall fescue in 2003 was a little under 60 ha for conventional farming and only 10 ha for organic farming (Vallivaara-Pasto 2002,2003)

Organic red clover seed was produced on 302 ha and 170 ha respectively in 2002 and 2003. Organic and conventional white clover and alsike clover seed were each produced on about 10 ha.

The supply of organic seed has been limited in Finland and for many varieties no organically produced seed is available. According to the Control Centre for Crop Production (KTTK), in February 2003 organic seed was supplied for only two varieties of meadow fescue by five seed packers, five varieties of red clover by sixteen packers and five varieties of timothy by fifteen packers. Forage breeders have developed new varieties with high yield and good feed quality, that need to be made available to the organic sector as soon as possible.

Organic seed is more expensive than conventionally produced seed due to the lower yields. In addition, there is an increased labour requirement to control weeds and a higher cleaning cost. High seed price and limited seed supply have decreased interest of organic farmers in using organic grass seed. There is great need to increase the effectiveness of organic herbage seed production in order to be able to provide seed at competitive prices. The lack of organic herbage seed will cause severe difficulties for organic milk and beef production, which depend on grasses and legumes.

Challenges for herbage seed production
The main challenges in certified organic herbage seed production in Finland are:

1) Control of weed infestation to meet purity standards
2) Timely application of sufficient nitrogen fertilizer for grasses, particularly if organic manure is not easily available
3) Harvesting forage legume without crop desiccants
4) Cleaning technology to rid forage seed of weed seeds. Combined seed production of timothy and clovers sets high cleaning demands.

Minimizing weed infestation in organic seed production fields is vitally important to ensure high seed yields and adequate seed quality. In Finland the most harmful weeds in grass seeds stands are scentless mayweed (Tripleurospermum inodoa) and couch grass (Elymus repens). Scentless mayweed is a noxious weed in timothy seed stands, especially during the first year. Couch grass should be controlled in organic farming before the establishment of a seed stand, but harvest timing and a developed the cleaning process might also be useful to minimize the problem, particularly for meadow fescue and tall fescue seed production.

In Finland the use of organic soils after peat lifting has ceased, but remains under discussion. The total area of peat production in Finland is approximately 60, 000 ha. It has been estimated that by 2010 around 15, 000 ha will be released from peat lifting (Anon 2003b). One option for the use of these

areas might be grass seed production, particularly organic seed production because low weed seed content.

The main challenge in organic timothy seed production is to get an adequate amount of nitrogen to the plants in spring. Many organic farmers in Finland are located in areas where the supply of animal manure is very limited. Therefore, timing and rate of animal manure application are very important. One solution to the nitrogen problem might be mixed cultivation of timothy and clover species (Aamlid 1999). In sequential cultivation systems timothy seed would be harvested from second and third year stands, while clover seed would be harvested during the first production year. In the simultaneous system, timothy and clover seed are produced together in mixed stands. In this system separating timothy and clover seed might represent a problem and it sets high demands on the cleaning process.

Use of leaf desiccation agents, common in conventional seed production of red clover, is forbidden in organic seed production. A need is therefore created to secure red clover seed harvest using alternative means. One solution might be swath drying and two-step combine harvesting.

During recent years forage seed production research has been very limited in Finland and research projects concerning organic herbage seed have not been initiated. Research on organic forage seed production has been done in Scandinavia (Aamlid 1997,1999,2002,Boelt 1997) but it will be essential to establish a research program that addresses problems in organic forage seed production in Finland.

References

Aamlid, T.S. 1997. Nitrogen and moisture inputs to seed crop of timothy (Phleum pratense L.). II. Split application of nitrogen in the seed harvest year. Journal of applied seed production. 15: 5-16.

Aamlid, T.S.,1999. Organic seed production of timothy (Phleum pratense) in mixed crops with clovers (Trifolium ssp.) Herbaage seed as a key factor for improving production and environmental quality. Fourth international herbage seed conference Perugia, Italy May 23-27,1999.

Aamlid, T.S., 2002. Nutrient supply to organic seed crops of Phleum pratense, Festuca pratensis and Bromus inermis. NJF report no 341. Grass and clover seed production. Ystad. 24-26 juni 2002

Anon (1998). Yearbook of Farm Statistic. Information Centre of the Ministry of Agriculture and Forestry. Helsinki.1998:5. 266 p.

Anon (2003b). Esitys kansalliseksi peltoenergia ohjelmaksi 2003-2010. FINBIO- Suomen Bioenergiayhdistys ry. Julkaisu 25. 68p

Anon (2003a). Yearbook of Farm Statistic. Information Centre of the Ministry of Agriculture and Forestry. Helsinki.2003:62. 266p.

Anon (2004). National List of plant varieties 2004. Plant Variety Board Official Journal. 2004:3

Boelt, B. 1997. Undersowing Poa pratensis L, Festuca rubra L, Festuca pratensis huds, Dactylis glomerata L and Lolium perenne L. For seed production in five cover crops. 1. The yields of cover crops and the seed yields of the undersown grasses. Journal of applied seed production. 15:41-47.

Vallinvaara-Pasto, R. (2003). Siementuotannon vuositilastot 2002-2003. Kylvösiemen 2003:3 p 9-17.

Vallinvaara-Pasto, R. (2002). Siementuotannon vuositilastot 2001-2002. Kylvösiemen 2002:3 p 11-19.

****

International Conference of Organic Movement and Seed Industry Held at FAO Headquarters in Rome

Bonn, July 20th 2004 – From the 5th to the 7th of July in Rome, the organic movement and the seed industry met for the first time on a world level to examine mutual challenges and opportunities for the organic agriculture and seed sector. The organic seed conference attracted some 270 participants from 57 countries and was jointly organized by the International Federation of Organic Agriculture Movements (IFOAM), an umbrella organization for the global organic movement, the International Seed Federation (ISF), which represents seed breeders and traders worldwide, and the United Nations Food and Agricultural Organization (FAO).

The conference focussed on several key aspects of seed production and propagation, including economics, seed quality and diversity, in addition to harmonization and regulation within the industry. About 60 presentations and 27 posters gave a broad overview of relevant topics. The conference's panel discussion addressed the pivotal issue of co-existence of organic agriculture with genetic engineering. Conference proceedings (188 pages/24 Euros) are available from IFOAM.

As the first conference jointly organized with NGOs and hosted on FAO premises, the meeting was a remarkable event and participants were heartened by FAO's hospitality and substantive contributions.

IFOAM president Gunnar Rundgren stressed in his keynote speech, entitled "Seeds are magic," some of the challenges for the organic movement regarding seeds, drawing special attention to the control held by multinational seed corporations and the most apparent manifestation of this force – the genetically-modified seed market. Rundgren stressed the need for harmonization in the organic sector, seed regulation in general, and the importance of respecting farmers' rights. His speech also highlighted the difficulties with organic seed legalities as they relate to the preservation of genetic diversity on organic farms.

In this context, Edith Lammerts van Bueren (Louis Bolk Institute, NL) pointed out in her conference summary that the organic sector needs to develop new strategies adapted to market diversification. In particular, it was concluded that plans should involve cooperation with the commercial seed industry and serve both larger-scale farmers focussed on export- and supermarket-quality varieties, and small-scale farmers who deal primarily with local markets and seed varieties.

In order to maintain dialogue between conference organizers and stakeholders - especially on the vital issue of co-existence between organics and GMOs - IFOAM Executive Director Zadok Lempert proposed to the FAO that it take the lead in establishing a standing committee that would evaluate the current situation and formulate a code of conduct for the matter. The FAO expressed a willingness to take this up, and also made a commitment to work with IFOAM to support participatory plant breeding for organic farmers.

The organic movement met alone prior and after the conference to discuss important issues around organic seeds which couldn't be accommodated in the official conference programme. Topics of discussion included seed exchanges, seed breeding, farmer's rights, and protection against invasive GMO technologies. Another chief discussion point was how organic seed regulation requirements create obstacles for farmers operating in local markets and/or living in developing countries.

The conference's spirit of cooperation was captured in the "Wrap-up" speech by Ms. Ranghanathan (ISF), who stated, "the forum provided for an exchange of use, opinions, and experiences based on mutual respect." Ranghanathan characterized the high level of inter-sectoral cooperation as good "seedsmanship".

The conference's positive impact was further evidenced by the organizers' commitment to continue working together to ensure the availability of organic seeds, in their full diversity, for organic farmers around the world.

For further information, contact Bernward Geier (b.geier@ifoam.org).

IFOAM World Office:
Charles-de-Gaulle-Str. 5, 53113 Bonn, Germany
Tel: ++49-228-926 50 10 Fax: ++49-228-926 50 99
URL: www.ifoam.org *E-Mail: headoffice@ifoam.org*

Grass Seed Residues - What's the Bottom Line?

Christoph E. Weder, M.Sc. - Beef Specialist
Alberta Agriculture Food & Rural Development
Spirit River, Alberta

Grass Seed/ Straw Residues:

Grass seed/straw residues are a great low cost way of feeding cattle in the Peace and Northern Alberta / B.C. region. For a long time these residues were thought of as low quality roughages and not much better in feed value than barley or oat straw. However, recent feed surveys have confirmed that grass seed residues are better than cereal straws. Results also showed that there are variances in their feed values and depending upon the age of the field, harvesting conditions and fertilizer management, the term low quality can be removed. This survey not only emphasized the importance of the grass seed residues but also the management practice of feed testing.

In general terms, grass seed/straw residue rations are suited for mature beef cows that are in the second to early third trimester. In the case of maintaining a 1400 pound mature beef cow with a good to better body condition of at least 6 (scale 1-9) she will require a minimum of 6.5% CP and 54% TDN in her ration. Looking at the feed results from the survey on grass seed/straw residue (Table 1), it is quite clear that many of these feeds will come close to maintaining the above-mentioned cow.

Tall fescue and meadow bromegrass proved to have the best feed value. However through the use of some form of supplementation, creeping red fescue and timothy also show an opportunity to reduce the cost of production for Peace Country cattle producers.

Nutrition and The Cow:

Protein supplementation of grass residues (crude protein 'CP' < 6%) has been proven as an effective way of improving dry matter intake and digestion, resulting in better maintenance of cow body weight and condition over the winter months. Protein supplements work by increasing the amount of ruminal NH_3 available for bacteria digestion. By increasing the NH_3 levels in the rumen, time for bacteria multiplication is reduced and bacteria digestion of the low-quality roughage is enhanced. This enhanced throughput of the roughage results in an increase in the dry matter intake and subsequently the animal performance. Grass seed residues are maintenance rations and do not work well to increase cow body condition (BC). If animals are in poor condition it is recommended that they be segregated and fed a ration containing some sort of energy supplement so that proper BC can be achieved. Cow BC is the number one factor controlling reproduction and rebreeding success. Significant research has been done studying BC pre-calving, pre-breeding and their effects on conception rates. The influence on the subsequent calf crop was astounding and the results are summarized in Table 2.

Table 1. Summary of Grass Seed/Straw Residues in The Peace Region of Alberta and B.C.

	# of Samples	Protein	ADF	DE mcal/kg	TDN
6 row barley straw	282	5.4	44	2.25	51
2 row barley straw	70	5.1	44	2.38	54
Oats straw	215	4.8	44	2.26	51
Timothy	16	4.2	39	2.29	52
Tall fescue	23	8.1	42	2.36	55
Creeping red fescue	29	5.5	46	2.4	52
Meadow bromegrass	5	7.2	42	2.26	51

Table 2. Relationship between body condition (BC) and post-calving fertility

Pre-calving Management	Winter Feed $$ as % of Main.	Cow BC at calving	Post partum management	Weeks delay in conception	Loss in next years calf weaning weight
Lose BC 2.5-2.0	85-90%	2.0	Lose BC 2.0-1.5	10	Up to 70%
Maintain BC at 2.0	100	2.0	Maintain 2.0	8	Up to 40%
Gain BC 1.5-2.0	120-130	2.0	Gain BC 2.0-2.5	5	Up to 15%
Lose BC 3.0-2.5	85	2.5	Lose BC 2.5-3.0	2	5%
Maintain BC	100	2.5	Gain BC 2.5	0	0
Gain BC 2.0-2.5	120-130	2.5	Gain BC 2.5-3.0	0	0

purpose in grazing situations when there is a desire to minimize the effects on grazing behaviour by having the cattle gather up every second day as in the situation with hand-fed type supplements. However, regulation of intake on self-fed supplements is impossible, many of these supplements contain high quantities of non-protein nitrogen, which is a poor cousin to natural protein in the case of supplementing low quality roughages, and finally these supplements on a cost per pound of CP are typically very high.

Concentrate and meal-based supplements such as canola and soybean meal are another very effective from for supplementing straw rations. These supplements have levels

Protein Supplements:

The choices and claims of protein supplements are endless. Supplements vary from meal- based like canola and soybean, to lick tanks and blocks, to grain by-products and alfalfa. Each has merit and some more so than others. Self-fed supplements like lick tanks and protein blocks may have a of CP > 35% and are very digestible. However due to the high CP values and their physical form these types of supplements will have to be mixed and/or processed with other feeds to achieve proper animal intakes, which can result in increased costs due to handling and processing. Processed supplements can however also be quite beneficial because the supplement can be blended as a carrier for minerals, vitamins, and/or ionophores such as rumensin. Concentrate supplements need to be hand-ed and so labour can become a limiting factor, however using skip a day feeding programs, the cost can be reduced and in fact feeding rates improved due to less variation in intake with higher levels of feeding. Ideally supplements blended to achieve an overall CP value of 18-20% and fed at 5-6 pounds daily or 10-12 every second day will work the best. In this case feed peas would also work quite effectively. .

Finally the third source of supplemental protein overlooked and often underestimated for its potential is high quality forages such as alfalfa hay or haylage. The advantages of forage supplements are several. First intake of a limit fed supplement will be very uniform, with minimal animal refusal. The digestion of forage supplements are very similar and synchronous to that of the straw; many times high energy supplements can cause what is known as a "negative associative effect", this causes an antagonistic pH within the rumen that will interfere with the straw digestion. With forage-type supplements overall rumen function is enhanced. Alfalfa hay and/or haylage are also a rich mineral and vitamin source and so works well as a mineral supplement. The disadvantage is that alfalfa can be bulky to feed and so can be more machinery and labour intensive. However, when evaluated on a $/lb of CP basis Table 3, forage supplements can show significant advantages.

Summary:

Grass seed residues are great feed alternatives for reducing ration costs for cows in second to early third trimester. However they are meant for mature cows that are in good shape and that have finished growing. Using grass seed residues for growing and or thin animals will result in animals that are nutritionally deprived which will more than likely effect calving and rebreeding success. Take the time to ensure that your ration is balanced cattle need free choice access to the residue and pay careful attention to the digestible intake protein so that minimum levels are met. Better yet have your feed sampled and analysed, as your feed may be better than average. Once the cows have calved the proportion of the residue in the ration may have to be reduced to meet the cows increased energy and protein requirements, working with a nutritionist or your local feed company will give you a better idea of the proportion of what can be included.

Table 3. - Cost Comparison of Protein Supplements - October 2003

	% NPN	% CP	$/2000 lb	$/lb of CP
Canola Meal	0%	40%	$210	$0.26
Wheat Shorts	0%	16%	$150	$0.47
32 % Beef Suppl.	47%	32%	$234	$0.37
Pea / Lentil Pellets	0%	20%	$150	$0.38
32% Lick Tank	69%	20%	$360	$0.90
20% Protein Block	0%	20%	$509	$1.27
20% Protein Lick	0%	20%	$768	$1.92
Alfalfa Cubes	0%	16.50%	$150	$0.45
2nd cut Alf-Long Stem	0%	18%	$100	$0.27
Peas	0%	20%	$175	$0.42

Herbicide Tolerance and Weed Control In Forage and Turf Seed Crops

Calvin Yoder, Forage Specialist, and Dan Cole, Forage Weed Specialist,
Alberta Agriculture, Food and Rural Development

Tolerance of Established Timothy to Herbicides

Trials were conducted in Alberta, Saskatchewan and Manitoba from 1999-2003 to evaluate the tolerance of established timothy to herbicides for seed production. Herbicides were applied at 1x and 2x the recommended cereal crop rates in the spring to established timothy. Visual ratings, seed yields and forage yields were collected. MCPA amine + Lontrel (clopyralid), Prestige (fluroxypyr + clopyralid + MCPA ester) and Curtail M (clopyralid + MCPA ester) did not injure established timothy growing under good moisture conditions. Under drought or stress conditions, Prestige, Curtail M and Lontrel + MCPA amine caused a significant seed yield reduction, with Lontrel + MCPA amine causing less seed yield reduction than Curtail M.

Spectrum (florasulam + MCPA + clopyralid) was tested at two sites in 2001 and did not cause noticeable damage or yield loss at the 1x rate. In 2002, all treatments applied to timothy at Ellerslie, including Spectrum at both the 1x and 2x rates, reduced seed yields (Table 1). The timothy at Ellerslie was under severe drought stress throughout the summer.

Ally (metsulfuron methyl) and Refine Extra (thifensulfuron methyl + tribenuron methyl) applications have visually caused stunting under moist and dry growing conditions. Ally has also reduced seed yields but the losses are not as large as one would expect when looking at the plots. Target (MCPA + mecoprop + dicamba), Refine Extra, Everest (flucarbazone-sodium) and Accord (quinclorac) have also caused significant seed yield losses. Accord was quite interesting in that there was no visual damage to the crop yet the seed yield losses were quite high. Refine Extra and Target significantly reduced seed yields under good growing conditions in one year. Sundance (sulfosulfuron) and Unity (bromoxynil + triasulfuron) were also extremely hard on timothy. **The trials show that extreme caution must be used when applying herbicides to established timothy and that poor growing conditions will likely affect the tolerance of timothy to herbicides.** Minor Use applications are being submitted to add established timothy for seed to the Curtail M and Prestige label.

Table 1. Seed yield (kg/ha) following applications of broad-leaved herbicides at 1x and 2x the recommended rates in the spring on established timothy.

Treatment	Peace Region Alberta 1999 (dry)	Calmar Alberta 1999 (moist)	Melfort Sask. 1999 (moist)	Peace Region Alberta 2000 (moist)	Calmar Alberta 2000 (moist)	Beausejour Manitoba 2000	Peace region Alberta 2001 (dry)	Calmar Alberta 2001 (dry)	Ellerslie Alberta 2002 (dry)
Curtail M 1x	**132***	**397**	**224***	**582**	**487**	**546**	**527***	**83**	**192***
Curtail M 2x	**108***	**323**	**182***	**474**	**463**		**370***	**65***	**174***
MCPA amine+ Lontrel 1x	**161***	**369**	**280**	**520**	**481**		**543***	**80**	**200***
Prestige 1x	**140***	**338**	**254***	**548**	**457**	**629**	**546***	**58***	**177***
Prestige 2x	**137***	**302**	**181***	**474**	**420**		**361***	**84**	**173***
Ally 1x	**145***	**313**	**249***	**475**	**462**		**545***	**97**	
Refine Extra 1x		**242***			**523**				
Attain 1x			**297**			**499***			
Target 1x		**256**			**356***	**254***			
Buctril M 1x			**292**						
Sundance 1x			**24***			**0***			
Unity 1x						**0***			
Fluroxypyr 1x				**556**	**399**				
Spectrum 1x							**679**	**79**	**180***
Spectrum 2x							**497***	**92**	**153***
Accord 1x							**141***	**39***	
Everest 1x								**32***	
Everest 2x					**507**			**28***	
Achieve 1x								**63***	
CHECK	**202**	**344**	**339**	**606**	**430**	**562**	**721**	**104**	**255**
CV%	**10.9**	**20.2**	**17.6**	**21.1**	**14.4**	**25.9**	**11.9**	**30.1**	**13.9**
LSD.05	**23.7**	**94.3**	**59**	**NSF**	**94**	**132**	**54**	**30**	**38**

*Significantly different from the check

Tolerance of Established Timothy to Achieve 80 DG and Achieve Liquid

Trials were conducted at Ellerslie and Beaverlodge to compare the tolerance of established timothy to Achieve 80 DG (tralkoxydim) and the new formulation of Achieve Liquid. The trial also evaluated the tolerance of timothy to a tank mix of Achieve Liquid with Curtail M. Herbicides were applied at 1x and 2x the recommended cereal crop rates in the spring to established timothy. Visual ratings, seed yields and forage yields were collected.

There did not appear to be any differences in the tolerance of established timothy between the applications of Achieve 80 DG and the new Achieve Liquid formulation applied at 1x the recommended rate. The application of Curtail M + Achieve Liquid at the 1x rate caused visual damage and significantly reduced seed yields in 2 of the 3 trials.

Table 2. Seed yield (kg/ha) following applications of Achieve 80 DG and Achieve Liquid in the spring on established timothy.

Treatment	**Peace Region 2003**	**Ellerslie 2003(Trial 1)**	**Ellerslie 2003(Trial 2)**
Achieve 80 DG 1x	147	333	413
Achieve 80 DG 2x		338	
Achieve Liquid 1x	164	331	359
Achieve Liquid 2x	155	343	376
Achieve Liquid + Curtail M 1x	122	226*	291*
CHECK	173	337	409
CV%	24.8	12.8	8.9
LSD.05	NS	51	48

* Significantly different from the check

Tolerance of Established Creeping Red Fescue to Herbicides

Over the past few years, work has been conducted in the Peace Region and Ellerslie on tolerance of established creeping red fescue to spring applications of herbicides that suppress or control cleavers. Products such as Attain, Prestige, Unity and Spectrum have been tested (Table 3). Creeping red fescue has shown good tolerance to Attain, Prestige and Unity but keep in mind that Attain contains 400 ml/acre of 2,4-D ester. In 1999 and 2000, Attain at the 2x rate caused a significant yield loss. Spectrum has been tested on established creeping red fescue at five locations at both the 1x and 2x recommended rates and has not resulted in any visual damage or yield loss. **Minor Use applications are being submitted to add established creeping red fescue for seed to the Attain and Prestige label.**

Table 3. Seed yields (kg/ha) of established creeping red fescue following spring applications of herbicides at 1x and 2x recommended rates.

Treatment	Spirit River1997	Woking 1998	Debolt1998 1998	Beaverlodge 1999	Debolt 2000	Beaverlodge 2000	Debolt 2001	Beaverlodge 2001	Debolt 2002	Beaverlodge 2002	Ellerslie 2003
Attain 1x	328	586	525	1408	367	1342	774	770	550	638	
Attain 2x	289	547	482	1167*	246	1183*	801	694	500	694	
Refine Extra 1x	461	549	544								659
Ally 1x	391	567	510								
Banvel+2,4-D 1x	288	535	571								
Unity 2x	435			1325		1005	735				
Prestige 1x		661	628	1391	406	1482	963	830	471	720	
Prestige 2x		600	497	1329	380	1337	856	719	528	614	
Spectrum 1x							999	710	548	807	718
Spectrum 2x							964	717	523	715	867
CHECK	393	473	604	1453	315	1323	895	695	521	681	736
C.V.% 20.8	23.2	30.4	7.7	28.8	9.5	8.9	12.9	16.1	12.7	13.4	
LSD.05	108	NS	212	150	NS	195	NS	NS	NS	NS	NS

* Significantly different from check

*Significantly different from the check

Tolerance of Established Meadow Bromegrass to Herbicides for Seed Production

Trials were conducted at Beaverlodge and Ellerslie to evaluate the tolerance of meadow bromegrass to the broad-leaved herbicides Spectrum, Prestige and Ally and the graminicides Achieve 80 DG, Achieve Liquid and Everest + Prestige.

Spectrum, Prestige and Achieve Liquid applied at both the 1x and 2x recommended rate did not cause visual injury or reduce seed yields of meadow bromegrass (Table 4). There was no difference in the tolerance of meadow bromegrass to Achieve 80 DG and Achieve Liquid applied at the 1x rate.

Ally applied at the 1x rate resulted in severe visual damage by stunting the growth of meadow bromegrass but seed yields were not reduced. Everest + Prestige caused severe visual damage and reduced seed yields by 62%.

Table 4. Seed yield (kg/ha) following applications of herbicides at 1x and 2x the recommended rates in the spring on established meadow bromegrass.

Treatment	**Ellerslie 2003**	**Beaverlodge 2003**
CHECK	1975	949
Spectrum 1x	1739	967
Spectrum 2x	1755	1027
Prestige 1x	1815	1001
Prestige 2x	1753	965
Achieve Liquid 1x	1856	939
Achieve Liquid 2x	1909	1005
Achieve 80 DG 1x	1774	984
Everest + Prestige 1x		362*
Ally 1x		950
CV%	24.2	15.3
LSD.05	NSF	
203		

*Significantly different from the check

Pre-seed and Pre-emergent Applications of PrePass on Grass Crops

Pre-seed burn-down with PrePass (florasulam + glyphosate) may be an effective method of managing weeds in new grass seed crops seeded alone or with a barley, oats or wheat cover crop. Trials were conducted for Dow AgroSciences Canada at Edmonton and Beaverlodge, Alberta in 2003 to evaluate the tolerance of germinating and emerging grasses to PrePass. The PrePass was applied at 1x and 2x the recommended rate on the same day (immediately before seeding the grasses) and 5 days after seeding at Edmonton while at Beaverlodge the PrePass was applied 3 days before seeding the grasses and 4 days after seeding. The PrePass was applied at 1x and 2x the recommended rate at the two timings and weed control was evaluated to determine the effectiveness and duration of the burn-down. Table 5 provides a summary of the visual ratings and forage yields collected from the trials. Prestige was applied over the trials at both locations about 1 month after seeding to control the weed escapes and the weeds growing in the check plots and thus remedy the yield loss caused by weed competition.

PrePass and Vantage Plus (glyphosate) applied pre-seed or pre-emergent did not affect seedling smooth bromegrass, meadow bromegrass, timothy or creeping red fescue emergence. However, weed emergence and growth in the pre-seed Vantage Plus alone treatment and in the unsprayed check treatment at Edmonton suppressed the growth of all three seedling grasses sufficiently to cause a significant biomass reduction at harvest as compared to the other more effective herbicide treatments. The suppression in the growth of the three grasses in these two treatments from weed competition occurred between the emergence of the grasses and when the entire trial was sprayed with Prestige for broad-leaved weed control. The significantly lower timothy yield in the check treatment at Beaverlodge was due to weed competition. There was not a significant forage yield reduction in the pre-seed Vantage Plus, possibly indicating the weed pressure was not as high with the drier conditions experienced at Beaverlodge at the time of seeding.

PrePass provided excellent control of volunteer canola, wild buckwheat, hemp nettle, smartweed and lamb's-quarters at Edmonton, especially when applied 5 days after seeding. The better weed control and subsequent higher forage yields in the 5 days after seeding PrePass treatment may be an indication of substantial weed emergence after seeding, associated with good moisture conditions. The PrePass provided better control of these weeds at Edmonton than Vantage Plus, indicating the benefit of florasulam in the PrePass tank mix for post-emergent and residual weed control.

Table 5. Weed control and grass forage dry weight yields (kg/ha) following PrePass and Vantage Plus applications the same day as seeding the grasses (pre-seed) and 5 days after seeding (pre-emergent) at Edmonton and 3 days before seeding (pre-seed) and 4 days after seeding (pre-emergent) at Beaverlodge.

Treatment	Edmonton					Beaverlodge				
	% Weed Control on 07/08/03					**Forage Dry Weight (kg/ha) 08/26/03***			**Dry Wt (kg/ha) 10/02/03**	
	Vol. canola canola	**Wild buckwheat**	**Hemp nettle**	**Smart weed**	**Lamb's-quarters quarter's**	**Smooth bromegrass**	**Timothy**	**Creeping red fescue**	**Timothy**	**Meadow bromegrass**
Check	**0**	**0**	**0**	**0**	**0**	**3126 b**	**1864 b**	**201 d**	**782 b**	**502 a**
Pre-seed Application										
PrePass 1x	**55**	**60**	**64**	**55**	**30**	**4047 ab**	**3218 a**	**672 bc**	**1805 a**	**1169 a**
PrePass 2x	**89**	**73**	**75**	**71**	**66**	**4107 ab**	**3308 a**	**518 cd**	**1628 a**	**1068 a**
Vantage Plus 2x	**13**	**18**	**11**	**10**	**11**	**2928 b**	**1661 b**	**236 d**	**1544 a**	**911 a**
Pre-emergent Application										
PrePass 1x	**100**	**88**	**94**	**95**	**94**	**4105 ab**	**4020 a**	**1144 a**	**1681 a**	**814 a**
PrePass 2x	**100**	**94**	**96**	**94**	**96**	**4560 a**	**3749 a**	**1045 ab**	**1511 a**	**881 a**
Vantage Plus 2x	**90**	**79**	**80**	**81**	**84**	**4469 a**	**3992 a**	**1054 ab**	**1600 a**	**925 a**
LSD (P=. 05)						**849**	**930**	**326**	**372**	**569**
CV						**14.6**	**19.9**	**31.4**	**16.6**	**43.5**
Tmt Prob (F)						**0.004**	**0.0001**	**0.0001**	**0.0005**	**0.44**

*Means followed by the same letter do not significantly differ (P=. 05, Student-Newman-Keuls)

Please note that PrePass is only registered as a pre-seed application and only prior to planting barley, oats or wheat. Legumes can be damaged by PrePass use.

Fall Spraying to Control Problem Weeds in Grass Seed Crops Update

This is the third and final year of this co-operative research project to determine the tolerance and weed control of herbicides applied in the fall to creeping red fescue, hard fescue, chewings fescue, tall fescue, timothy, perennial ryegrass, Kentucky bluegrass and meadow bromegrass grown for seed production. The partners in this research project include Dan Cole and Nicole Olstad of Alberta Agriculture, Food and Rural Development, Edmonton; Calvin Yoder, Forage Specialist at Spirit River; Henry Najda, Grass Seed Agronomist at Brooks; Alberta Agricultural Research Institute; Dr. Nigel Fairey, Grass Seed Researcher at Agriculture and Agri-Food Canada, Beaverlodge; Jean Beaudoin, Manager of Smoky Applied Research and Demonstration Association at Falher; and Dr. Jane King and Dick Purveen of the University of Alberta.

Sixty one grass seed tolerance and efficacy trials were established at the U of A Experimental Farm at Ellerslie, the Crop Diversification Centre South at Brooks and Bow Island, the Agriculture and Agri-Food Canada Research Station at Beaverlodge and in several producer's fields in the Peace Region. The fall spraying tolerance and efficacy trials were conducted on grass seed crops in the year of seeding and in the year after seeding. The main objective is to add tolerant grass seed crops to the effective herbicide labels through the Minor Use program.

Several key findings from the trial work include:

< Ally sprayed in the fall appears to be safe to use on most of the grasses tested except perennial ryegrass. Spring or summer applied Ally often damages grass seed crops like tall fescue, timothy and meadow bromegrass, so the fall spraying may offer a window of opportunity for reasonably priced (approximately $5.00/acre) control of hard-to-kill perennial, biennial and winter annual weeds such as dandelion, alsike clover, white cockle, narrow-leaved hawk's-beard and scentless chamomile.

< Fall applied Prestige and Curtail M provide good alsike clover and narrow-leaved hawk's-beard control. They both appear to be relatively safe to use on the eight different grass seed crops in the fall.

< Fall applied Banvel (dicamba) + 2,4-D amine tends to be a little harsh on established creeping red fescue, hard fescue and, especially, chewings fescue. Spraying a fine-leaved fescue crop with Banvel + 2,4-D amine when it is under stress, such as from drought, may cause a seed yield reduction the following year.

< The residual herbicides that were applied in the fall did not provide the long-term weed control into the following season that we were hoping for. Although they controlled germinating annual weeds the following spring, they had little to no effect on perennial weeds. Unfortunately, wild oats have not been growing in the trial areas with the dry conditions, so it has been difficult to assess wild oat control with the residual herbicides like Princep (simazine).

< Sundance caused extensive damage to grass seed crops when applied in the fall. The Sundance treated grasses did not grow very well in the spring and had reduced seed yields. This is unfortunate, as Sundance appears to be one of the more effective herbicides for the control of wild or foxtail barley.

< Fall applied Aatrex caused seed yield reductions to several of the established grasses.

The final report will be available the end of June, 2004 for anybody would like a copy. The most promising treatments from this project will be developed further to have safe, effective and registered weed control tools available to grass seed growers. Further work is planned in 2004 to determine optimum timing for fall application of Ally on established timothy, meadow bromegrass and hybrid bromegrass and to collect enough data to apply for Minor Use registrations adding these three grasses to the Ally label. It is important to keep in mind that none of these herbicide treatments are registered for this use at this time. Thank you to the Alberta Agricultural Research Institute, the Alberta Branch, Canadian Seed Growers Association, the Peace Region Forage Seed Association, Dow AgroSciences Canada and DuPont Canada for your support of this project.

What Herbicides Can be Sprayed on Seedling Timothy for Wild Oat Control?

Seedling timothy is one of the most sensitive grasses to herbicides, especially under drought or adverse conditions. Even the herbicides registered for use on seedling timothy can cause injury to this crop, whether it is being grown for seed production or hay production. Table 6 provides information on the relative tolerance of seedling timothy sprayed with registered and unregistered grassy weed herbicides at the 2 – 4 leaf stage. The grassy weed herbicides tend to cause more damage to timothy than the broad-leaved weed herbicides and there are only two grassy weed herbicides registered for use on seedling timothy; Avenge and Achieve 80DG. Unfortunately, Avenge seems to require crop competition in order to maintain control of wild oats and Syngenta is switching formulations from Achieve 80DG to Achieve Liquid. The new Achieve Liquid formulation does not have any grasses, including timothy, on the label and Syngenta will not support the addition of timothy to the new Achieve Liquid label. This support is required in order to apply for a Minor Use registration. It may be very difficult to control wild oats or other grassy weeds in seedling timothy with a herbicide without injuring the timothy as the company drops Achieve DG and starts to market Achieve Liquid only. Achieve Liquid also appears to cause more injury to seedling timothy than Achieve DG. If the seedling timothy is under drought or other stress, there is even more chance of injury.

Table 6. % injury of seedling timothy from visual assessments one month after spraying of two side-by-side comparisons near Edmonton in 2000 and 2003 and average % injury from Canadian Weed Science Society research reports.

Treatment (x recommended rate)	**% Injury of Seedling Timothy**		
	2000 Trial	2003 Trial	Research Reports
*Achieve 80DG 1x	10	15	22 (17)**
Achieve Liquid 1x		35	
Achieve 80DG 2x	55	35	
Achieve Extra Gold	15		37 (2)
Achieve 80DG + MCPA ester	25		
Prevail 1x	15	80	55 (4)
*Avenge 1x	50	30	30 (16)
Horizon 1x	100	100	95 (6)
Hoe-Grass 284 1x	70	95	76 (12)
Puma Super 1x	90	95	75 (15)
Everest 1x		35	
Everest + MCPA amine 1x	20	35	

*Registered for use on seedling timothy.
**Number of research reports/trials involved.

Tolerance of Kura Clover to Herbicides

There is interest in growing Kura clover in pastures in western Canada as it appears to be a very hardy legume with good persistence under grazing once it is established. Dr. Jane King at the University of Alberta is heading up a project to investigate the growing of Kura clover for seed production in order to have a local and, hopefully, more economical seed supply for potential users. As Kura clover grown for seed has to be a clean product in order to be marketed, part of the agronomic package being investigated is the tolerance of seedling and established Kura clover to broadleaved and grassy weed herbicides.

Initial results indicate that seedling and established Kura clover are relatively tolerant to Tropotox Plus (MCPB + MCPA), Pursuit Ultra (sethoxydim + imazethapyr), Odyssey (imazamox + imazethapyr), MCPA amine, Assure II (quizalofop-p-ethyl), Poast Ultra (sethoxydim), Select (clethodim), Venture (fluazifop-p-butyl) and Achieve 80DG at recommended rates for other legumes. Pardner (bromoxynil) and Basagran (bentazon) caused initial burn but the seedling and established Kura clover mainly recovered in our trials conducted at Edmonton. It was interesting that the seedling Kura clover appeared to be tolerant to Embutox (2,4-DB) but the established Kura clover showed long term damage from Embutox applied the end of May. Both pre-seed Edge (ethalfuralin) and post-emergent Refine caused severe long-term injury.

The herbicide tolerance trials were harvested for seed but the yield information is not yet available. The weed management tools for successful Kura clover seed production need to be further developed and the seed yield information collected to obtain the necessary herbicide registrations through the Minor Use Program. Unregistered herbicide uses should be avoided, especially with a high value crop like Kura clover.

****

First announcement

IHSG Workshop 2005 (6-9July, 2005)

Following the successful IHSG conference in Australia 2003 we intent to hold a seed workshop in the UK in July 2005. This workshop will be held between the International Grassland Congress (IGC) which is in Ireland with subsequent satellite workshops around the UK and the International Turfgrass Congress, which is also being held in the UK.

Date
The workshop will commence on the evening of Wednesday, 6 July and will finish on the morning of Saturday 9 July.

Location
It will be held near the city of Winchester (further details of this beauticul city can be found at www.visitwinchester..co.uk), which is in the South of England, approximately 90 km southwest of London. It is in the heart of the main UK grass seed production area, is easily reached by car (off M3 motorway), train from London (70 minutes) and has good air links from the nearby airports of Southampton (Eastleigh) and Bournemouth to numerous continental destinations. London airports can also be easily reached.

For those people who are attending the IGC satellite workshop in Aberystwyth, transport will be provided from Aberystwyth to Winchester.

Programme
The workshop will provide ample opportunities for discussion and also make best use of the excellent location. There are many seed growers within1 hour of the conference location. The workshop will therefore include visits to some of the best seed growers in the area, a visit to local seed production trials and an opportunity to see some of the other aspects of seed production in the area. As many of the seed growers are also taking part in Countryside Stewardship schemes, the impact of these types of schemes on seed production and other activities will be included in the visits. The outline programme is,

Wednesday 6th July		Arrival
Thursday 7th July	AM	Workshop sessions (topics to be organised)
	PM	Visit to organic and conventional grass seed crops, turf production, grass seed production trials
Friday 8th July	AM	Workshop sessions (topics to be organised)
	PM	Visit to herbage seed crops, seed crops of other species, impact of countryside stewardship schemes.
Saturday 9 July		Depart

Registration
Pre-registration forms with details of venue and costs will be posted on the web-site within the next few months. Further details can be obtained from athole.marshall@bbsrc.ac.uk

Conference Notes

The **XX International Grassland Congress 'Grasslands- a Global Resource'** will be held from Sunday 26th June -Friday 1st July, 2005 in Dublin, Ireland. Four Pre-Congress tours are available (starting on Thursday 23 June, concluding 25 June). The opening ceremony will be on Sunday 26 June with scientific sessions on the 27, 28, 30 June and 1 July (mid - congress tour on the 29th June. There willl also be a choice of 5 post-congress satellite workshops. Further information can be obtained at www.igc2005.com or from nmeenan@conferencepartners.ie

****

****

International Herbage Seed Group,
c/o Institute of Grassland and
Environmental Research,
Plas Gogerrdan, Aberystwyth,
United Kingdon SY233EB

****