

Crocus Group Bulletin No. 37

Summer 2009

Patron Brian Mathew MBE VMH
Committee David Stephens
Alan Edwards
Hon. Sec. Tony Goode

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Hon Sec Notes

When David suggested that I take over as Secretary of the Crocus Group he advised me that I would need to encourage people to write articles for the newsletter. New to the job, I clearly need more practice as there are fewer contributions than usual. So please can I ask every member to consider writing something for a future newsletter. Views on cultivation from around the world, experience with crocus in the wild or in the garden, one line or a short essay, all will be welcome. What do you make of the recent developments in Crocus taxonomy following the genetic research results recently published? Perhaps you know of further research in progress. Please share your thoughts and experiences with other members. **Post to: Tony Goode, 3 Woodland Road, Hellesdon, Norwich, Norfolk, NR6 5RA or**

E-mail to: thealpinehouse@fsmail.net

Tony G

News from the Net

In the last newsletter I mentioned the Scottish Rock Garden Club forum as a source for news and information about crocuses. There have been some very interesting and well illustrated posts in the last few months including some rarely seen crocuses. A summary of a few highlights is recorded below. (R=Reply No.)

Nov 2008

R110 & R121 Oron Peri, *Crocus hyemalis* in wild and cultivated

Rs 126/7; 137/8/9; 147 Arthur Nicholls Epic trip to see crocus in Greece, fantastic variation.

R190 Oron Peri, *Crocus moabiticus* in cultivation in Israel

Dec 2008

R14 Janis Ruksans, *Crocus speciosus* Iran

R19 JR, *Crocus fleischeri* unusual variations

R94 JR, *Crocus speciosus* in Crimea

R124 JR, *Crocus gargaricus* subspecies discussed and illustrated

Jan 2009

R17 Kees Jan, *Crocus putative* wild hyb *C cancellatus* and *C kotschyanus* plus discussion in following posts.

R28 Kees Jan, *C cancellatus* ssp *pamphylicus* in Icel Prov incl white fm

R30 Kees Jan, *C pallasii* ssp *dispathaceus* in wild.

R71 Janis Ruksans, *C chrysanthus* wild habitats & variation

R94/8/9 JR & Tony Willis pics and discussion on *biflorus/chrysanthus* hybrids in wild

R133/4 JR *C biflorus* ssp *isauricus* in wild

R178-80 JR Variation in *C versicolor*

Feb 2009

Many posts of spring crocus in cultivation. Note TG's National Collection pics and Tony Willis extensive collection of plants raised from wild seed.

R232 Ibrahim, *Crocus biflorus* ssp *adamii*

R283 Rafa D, *Crocus carpetanus* in wild habitat

March 2009

R92 Franz Hadacek, *Crocus lawn* in Vienna

R168/9 Janis Ruksans, *Crocus tauricus* wild in Crimea.

R196 Ibrahim, *Crocus danfordiae*, *Crocus flavus dissectus* wild in Turkey

R266 Ian Young, *Crocus pelistericus* thriving in cultivation

R299 Variation in *Crocus abantensis*

R309 Janis Ruksans, variation in *Crocus aeri*

R365 Franz Hadacek, *Crocus sieberi* ssp *sieberi* seedling variation in cultivation

Also various posts of spectacular spring displays in Germany and the UK

April 2009

R18 Janis Ruksans, variation in *Crocus cvijicii*

R28 Zhirair Basmajan, common viruses in *crocus*

R29 *Crocus vernus* wild in Austria

R33 Janis Ruksans, *Crocus angustifolius* Bronze form is a hybrid form?

R39 *Crocus veluchensis* wild in Bulgaria

May 2009

R3/4/6/16/17/18 Two comprehensive photo reports from Ulu Dag and from the Abant area by Ibrahim who is based in Istanbul. Showing variation in *C biflorus* ssp *pulchricolor*, and hybrids with *C chrysanthus*. *Crocus gargaricus* ssp *herbertii*, *Crocus abantensis* and *Crocus olivieri* ssp *olivieri*.

The forum is open for non-members to read and despite the inevitable chit-chat there are some experienced and well travelled contributors. You do not have to be an SRGC member to join in the discussion. Quite a few of the CG members already contribute but we are always keen to hear from newcomers.

Crocus Group Seed Exchange 2009

The aim of the seed exchange is to get seed to members as close as possible to the correct time for them to be sown for optimal germination (in the northern hemisphere). *Crocus* seed has been shown to germinate best if sown during the higher temperatures of late summer before the lower temperatures of autumn and winter initiate germination. The best time for sowing is therefore at the same time as nature does it in the wild, that is when the ripe seed is expelled from the mature seedpod in late spring to early summer. For this reason we ask donors to send seed as soon as possible after they have collected it, and in any case before 31st of July.

On or about the 1st of August a seed list is compiled and sent to members who have requested a copy by sending me a stamped addressed envelope, again before the 31st of July. Overseas members should not stamp the envelope, but an International Reply Coupon would be appreciated.

Members should indicate on the seed list which seeds they want up to a limit of 30 packets, and the seed request should be returned before the 31st of August. On or about the 1st of September the seeds are divided between the members who requested them, **with donors getting first choice**, although non donors always get a good deal. You will receive your seeds within a few days after that. They should be sown immediately and left exposed to the weather until they germinate, after which they may be brought under cover.

Donations of seed and requests for seed lists from non donors should be sent, before 31st July to: - David Stephens, 'Green Hollow', 76 South Terrace, Dorking, Surrey. RH4 2AQ, UK.

To recap:

Rule 1. If you are a donor, send seed to me before 31.7.2009

Rule 2. If you are not a donor but want a seed list, send a SAE to me before 31.7.2009

Obviously, donors always get first choice and very rare seed in short supply invariably goes to them. However, non-donors receive a fair proportion of what they ask for and always get a good deal.

Some statistics last three years:

Year	No. of <i>Crocus</i> group members	No. of members requesting seed list	No. of members donating seed	No. of seed lots offered	No. of <i>Crocus</i> taxa represented
2008	184	61 (33%)	28 (15%)	110	65
2007	166	61 (37%)	27 (16%)	148	74
2006	153	64 (42%)	26 (17%)	159	73

The *Crocus* Group seed exchange has I think been very successful and instrumental in getting most of the known *Crocus* taxa into cultivation. When I managed to persuade Primrose Warburg to allow

the first seed exchange in 1992, it was very difficult to get hold of many *Crocus taxa*, even some of those we would consider fairly common by today's standards.

One of my frustrations as curator of the exchange over the years has been that for the rarer taxa there are never enough seeds to make more than just a few packets. Obviously, most members request these so most will not receive them. These are distributed by a blind draw among the donors. Very occasionally there are enough seeds to allow everyone to have a packet such as with *Crocus michelsonii* in 2007. However, even with such small numbers of seed available these rare taxa are becoming slowly more widely grown. These last few years has seen the distribution of small quantities of *Crocus wattiorum* so in a few years time hopefully this will be more widely grown.

Can I urge members to make an effort to try to get seeds from their plants and to swap them in the seed exchange; this is one of the major ways to increase their availability and your collection. It can be difficult to get *Crocus* seed set in bad growing seasons particularly on the spring taxa. But, if while you are examining your flowering pots you carry a paint brush or similar implement, you can assist nature by becoming a pollinator. Growing bulbous plants from seed does not seem to occur to a lot of otherwise good growers. Perhaps it is the fact that you have to wait a few years to see a flower that deters. However, other than this, the process is extremely easy, just put *Crocus* seed in seed compost in a pot in late summer, expose to all weathers until germination then put under some protection from excess cold and water logging. Keep on the dry side over the late spring and summer then repeat the process. A few years doing this and you will have the pleasure each year of seeing new flowering pots of *Crocus* of your own making. **S**

Bacterial and Fungal Diseases in *Crocus* – Janis Ruksans

Janis has kindly allowed CG members a pre-publication excerpt from his forthcoming book on Growing Crocuses. The book will be published by Timber Press in the near future. A distillation of a lifetimes experience it will fill a gap on all our bookshelves! TG.

There is only one **bacterial disease** which rarely affects crocuses---*Pseudomonas gladioli*. It causes cavity formation on corms and these are coated in a glossy hard substance. It usually affects only corms beforehand mechanically damaged by bugs or mites and does not affect undamaged corms. Most dangerous it is in a freshly broken ground and can be eliminated by killing the pests.

Mildew is caused by *Penicillium hirsutum* and infects mechanically damaged corms during the storage in a bulb shed. Corms that get damaged at the end of the storing period can be infected in a greater extent. The corms develop yellowish white or light brown spots which grow in size during the storage. Seriously infected corms do not form shoots and are easy to detect before planting. Slightly infected corms continue to rot in the ground. If they form new shoots, they remain small and dry up sooner producing very small replacement corms which, like the neighboring plants, remain uninfected. More susceptible are yellow--flowered crocuses and species with thin covering sheets. The most important protection measure is careful harvesting and storing of corms in a well--ventilated shed.

Grey mould or botrytis is caused by *Botrytis croci* and *B. gladiolorum*. Seriously infected corms have unusually dark brown tunics, sometimes with small flat sclerotia on them. The upper part of corm is covered with small round pinhead--size blackish--brown spots. By heavy infection the shoots rot before emerging above ground but in most cases the cataphylls become brown and flower buds sometimes rot and above ground appear only the green leaves. Later on the green leaves develop yellowish brown or brown spots of various sizes. In moist conditions dead flowers are covered with grey "wool". On dead leaves there are small black sclerotia formed. *Botrytis* is spread by infected corms and by spores; sclerotia possibly are of short lifespan in the soil, therefore crop rotation is essential to prevent the spreading of the disease (it affects other members of Iridaceae family, too). Gray mould is more infectious in wet weather and it is very important to remove all faded flowers, especially on autumn and winter--blooming species when the weather is dull and damp. All infected corms must be destroyed, others---treated with fungicides. If the weather during the active growth period is rainy a spraying with fungicides is essential.

Blight or smut caused by *Urocystis gladiolicola* rarely affects crocuses. It can be recognized by longish lead--grey pustules on corm tunics from where black dust--like spores spread around. Cross--cutting of corm will show black spots throughout the corm. Seriously infected corms

die, slightly infected vegetate but the newly formed ones retain the infection which can quickly spread in the bulb shed.

Fusarial rot is caused by Fusarium oxysporum. The same fungus (though actually not identical, but very closely related) causes **pseudo--rust** as well. In case of fusarial rot the infection begins from the basal plate and the corm becomes soft and yellowish brown. At harvesting time they can be easily recognized by dark brown tunics that quite often are coated with stuck soil particles. Soon the infected tissues harden and mummify, usually it is covered with white or pinkish mould. Such bulbs have loose covering tunics and most of them harden (become stone--like) during the storage. On the damaged corms live Rhizoglyphus mites and they emit specific scent. Sclerotia can remain in soil for several years and mostly affect plantings which are over fertilized with nitrogen. It can quickly spread in the bulb shed if the air is humid and warm (above 21°C).

In case of pseudo--rust the symptoms are more close to the true rust. On the corm base or sides develop large dark brown spots which penetrate as deep as the core of the corm. Infected corms after planting die or make weak shoots which remain compressed in shape (retaining vertical position) and prematurely wither. Unlike the fusarium rot the soil particles don't adhere and mould isn't formed therefore it is more difficult to find the infected corms.

To guard against both forms of Fusarium the grower should be cautious with fertilizing, carefully check the planting material and destroy all suspicious corms. Crop rotation (6--field system) is essential.

Rust is caused by Uromyces croci. In case of the infection, on cataphylls and bases of the green leaves develop grayish to black--brown stripes that spread parallel to the nerving where afterwards large black spots form on which develop orange pustules of rust. On the above--ground parts of leaves the symptoms can be found rarely. Spots can develop on corms as well; they are localized on the grooves where covering tunics are attached. This disease can be controlled by hot water treatment---2.5 hours at 43.5°C and by destroying all corms with spots and weak shoots.

Root rot can be caused by three agents.

In case of Stromatinia gladioli in early spring on roots develop light brown stripes and spots. Leaves turn yellow starting from the tips and roots rot off completely. On cataphylls develop sclerotia in the form of small black spots, on corm bottoms form brownish black sunken spots. The sclerotia stay in soil for many years. Fungicide treatment and changing (or disinfection) of soil can help.

Most serious are root rots caused by various Pythium species whose first symptoms may show up very soon after planting. Root tips become dark brown or blackish and easily break. Later the roots become light gray and transparent and their "skin" is easily to peel off. By heavy infection on cataphylls develop ovoid or irregular spots with a darker edge. In spring when the weather is dry and warm the leaf tips grow yellow early, on the leaves appear lead--gray spots. The rot is spread by infected corms and it remains in soil for many years. Dutch growers use soil fungicides shortly before planting. Chemical treatment of harvested corms can help, too, but most of specific fungicides against Pythium are now forbidden in the EU. So there is no real remedy against it, only replanting in clean soil.

Root rot can also be caused by root nematodes---Pratylenchus penetrans. In this case the plant development is hindered, they start to wilt and turn yellow. On the roots one can see small, at first sharply marked, later---large and smudgy brown spots. Since the roots have died off, the replacement corms are very small but they are not infected. It is recommended to grow French marigolds (Tagetes patula or T. erecta) one year before planting of crocuses or carry out soil disinfection with nematicides.

Rhizoctonia tuliparum generally infects only leaves but corms and roots remain healthy. The underground parts of cataphylls become partly or entirely brown and on them develop holes with fringed edges. The tips of the green leaves are light brown and usually adhered together. By very serious infection plants don't come up at all. By minor infection when the soil temperature raises the plants recover. When the disease is found for the first time, dig up the infected plants together with the soil around and underneath the corms and also the neighboring plants. Deep trench--ploughing of the soil can help.