

IOBC NEWSLETTER 6

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IOBC is affiliated with the International Council of Scientific Unions (ICSU) as the Section of Biological Control of the International Union of Biological Sciences (IUBS)

IOBC GENERAL ASSEMBLY

The next Session of the IOBC General Assembly will be held in Washington, DC, USA, in conjunction with the 15th International Congress of Entomology, August 1976. The agenda of the Session will be communicated at a later stage. Amendments to the statutes have not been proposed, either by the Council or by Regional Sections and IOBC members. The General Assembly must elect for a term of four years (1976 - 1980) the President, the two Vice-Presidents, the Treasurer and the Secretary - General. The slate of candidates has to be submitted to the IOBC members for consideration at least four months before the General Assembly (Art. XIV of the statutes).

The Secretary - General

XV International Congress of Entomology

The 15th International Congress of Entomology will be held in Washington, D.C., U.S.A., August 19-27, 1976, under the sponsorship of the National Academy of Sciences and the Entomological Society of America. Sessions will be held in the excellent meeting facilities of the Washington Hilton Hotel. Special events are being planned at national scientific and cultural centers. Two international airports near Washington give direct access from abroad. University housing will be available in addition to hotel facilities.

The Organizing Committee for the Congress is composed of Curtis W. Sabrosky (Chairman and President of the Congress), Ernest C. Bay (Secretary-General), Wallace P. Murdoch (Treasurer), William G. Eden, Gordon E. Guyer, E.P. Knipling, Robert L. Metcalf, John V. Osmun, Ray F. Smith and Edward O. Wilson.

The program will emphasize plenary symposia, invitational speakers, specialized symposia/work groups/panel discussions, and special interest groups or informal conferences. Thirteen program sections cover Systematics, Genetics, Physiology and Biochemistry, Toxicology, Ecology, Behaviour, Social Insects and Apiculture, Biological Control, Medical and Veterinary Entomology, Agricultural Entomology and Pest Management, Forest Entomology, Stored Products and Structural Insects, and Pesticide Development, Management and Regulation.

If you are interested in receiving future information, including registration forms, please send a postcard with your name and address, typed or in block letters, and also the section of your major interest, to

Dr. Ernst C. Bay, Secretary General
XV International Congress of Entomology
P.O. Box 151
College Park, Md.
USA 20740

IOBC Co-sponsorship

The International Organization for Biological Control will co-sponsor certain plenary and sectional symposia of the XV International Congress of Entomology. Details should be available by the time of our next Newsletter.

ENTOMOPHAGA

WHRS subscribers to *Entomophaga* will notice a change in the manner of distribution of the journal. By agreement with the publisher in Paris, Dr. George Allen, Treasurer of IOBC-WHRS, has arranged to have bulk shipments of each issue forwarded to his office at the University of Florida where they will be processed and mailed to WHRS members. It is felt that this new procedure, when established, will result in much improved service to WHRS subscribers.

International Union of Biological Sciences

The 1975 Executive Committee meeting of IUBS will take place at the Secretariat in Paris 24-26 September 1975 to conduct the affairs of the Union and make preparations for the 1976 General Assembly and elections. It will also discuss the Union's policy for grants and loans and examine requests for subventions received this year. National Committees and scientific member bodies may send a representative as an observer at their own expense. Such representatives have no voting rights. Full names and addresses of representatives should reach the Secretariat no later than 1 August 1975.

Interest of United Nations Environment Program (UNEP) in Biological Control

It is of interest to all of us that UNEP (headquarters in Nairobi, Kenya) has exhibited a keen interest in fostering biological control and other alternatives to chemicals for pest control on a worldwide basis. Problem areas that they have already entered are: cotton, malaria and schistosomiasis. Other areas may be included later. The precise patterns of UNEP encouragement and support are to be developed. They will hold a joint UNEP/FAO Meeting on Cotton in Karachi, Pakistan on October 13-16, 1975. Carl Huffaker has been engaged as a consultant on short-term assignments with UNEP to assist at certain conferences and in the program's development. Currently, an effort is being made (US/AID support) to appraise the feasibility of developing from current systems of information storage and retrieval a practical information system for biological and integrated control or, if not feasible, to ascertain the additional needs for developing an adequate system.

SECOND GENERAL CONFERENCE OF AAASA

The Second General Conference of the Association for the Advancement of Agricultural Science in Africa took place in Dakar, 24-28 March 1975. Major achievements of the Conference included the adoption of a five-year programme of activity, the creation of the offices of Country Representatives, and adoption of several far-reaching recommendations of the theme of the conference: Making Agricultural Research More Meaningful to the Farmers. The new officers elected are:

President

Mr. L. A. Sauger
I.S.R.A.
B.P. 3120
Dakar, Senegal

Vice-President

H.E. Prof. M. Abdel Akher
Ministry of Agriculture
Cairo, Egypt

Honorary Secretary General

Dr. Mukendi T.M.
Ministry of Agriculture
B.P. 1112
Kinshassa I, Zaire

Honorary Treasurer

Dr. R. O. Adegboye
Dept. Agric. Economics
Univ. Ibadan
Ibadan, Nigeria

Dr. Lawrence K. Opeke, P. O. Box 30087 M.A., Addis Ababa, Ethiopia is Administrative Secretary General.

BIOLOGICAL CONTROL OF WEEDS

(a) IV International Symposium on Biological Control of Weeds

The IV International Symposium on Biological Control of Weeds will be held on the campus of the University of Florida, Gainesville, Florida, USA, August 30 to September 2, 1976, immediately following the International Congress of Entomology. Hopefully researchers from outside the United States will be able to attend both conferences. Contact for further information:

Dr. T. E. Freeman, Chairman
IV International Symposium on Biological Control of Weeds
Department of Plant Pathology
University of Florida
Gainesville, Florida 32601 USA

(b) Biological Control of Canada Thistle (*Cirsium arvense* (L.) Scop.)

Urophora cardui (F.), a tephritid gall fly, was cleared for release in Canada in midsummer 1974. During July and August, 901 flies and 85 galls on potted plants were released at 3 sites in Saskatchewan and 1 in British Columbia. Galls were produced on all 3 Saskatchewan sites. Most of the larvae in the field-produced galls were dead after the first hard frost in early October, while those in the transplanted thistles, which had more mature galls by then, survived. This indicates that the flies must be released earlier for the larvae to harden in time for winter.

[Taken from Biological Weed Control Newsletter item submitted by D. P. Peschken, Regina Research Station, Regina, Saskatchewan, Canada]

(c) Expansion of Biological Control Programme

The Division of Entomology, CSIRO, biological control unit at the Long Pocket Laboratories, Brisbane, Australia, has expanded its program to include doublegees *Emex australis* and *E. spinosa* and water hyacinth, *Eichhornia crassipes*.

For control of the *Emex* spp., a weevil *Apion antiquum* was introduced from South America, where *E. australis* is indigenous, and Hawaii where it has been used successfully to control *Emex* spp. *A. antiquum* has been liberated at experimental sites in eastern, southern and western Australia.

For control of *Eichhornia*, a weevil *Neochetina eichhorniae* and a mite *Orthogalumna terebrantis* have been introduced from the USA. USDA biological control researchers had previously introduced these agents from South America. In Australia the agents are still being held in quarantine but it is expected that liberations may be made toward the end of 1975.

K.L.S. Harley
Div. Entomology, CSIRO
Long Pocket Laboratories
Brisbane, Australia
[as reported in the Biological Weed Control Newsletter]

(d) Request for information on possibilities of biological control of weeds in fruit plantations

In fruit plantations in Israel profound changes have occurred in the weed population in a relatively short period. The annual weeds, destroyed by herbicides, have been replaced by perennials such as *Cynodon dactylon*, *Cyperus rotundus*, *Sorghum halepense*, *Convolvulus* spp., *Paspalum* spp. Another group of weeds against which an efficient method of control is sought are the parasitic weeds such as *Cuscuta* and *Orobanchae*. Scientists experienced in biological control of these weeds are requested to contact:

M. Horowitz,
Division of Weed Research
Agricultural Research Organization
Regional Experiment Station
NVE-YA'AR
P. O. Haifa, Israel

(e) Establishment of a reference collection of slides of noxious weeds and their natural enemies.

Dr. D. Schroder of European Station, CIBC is planning to establish a reference collection of slides of noxious weeds and their natural enemies in order to build up a complete documentation of weed species which have been subject to biological control trials, as well as on their specific natural enemies. It is planned eventually to publish a catalogue of available slides in the B.C. of Weeds Newsletter and to make the slides available to research workers and for educational purposes. Slides would not be made available for publication without permission of the author.

Dr. Schroder would like to receive slides showing a typical specimen of the weed, stands of the weed in the area infested, specimens of the main specific natural enemies, typical damage caused by these species, and slides demonstrating the effect of their action on the weed population. For details, please write:

D. Schroder
European Station, CIBC
1, Chemin des Grillons
CH-2800 Delemont, Switzerland

WESTERN HEMISPHERE REGIONAL SECTION (WHRS)

(a) Agricultural Research Service, U. S. Department of Agriculture, Working Group on Natural Enemies

A meeting of the ARS, USDA Working Group on Natural Enemies of Insects, Weeds and other pests (WGNE) was held in Brownsville, Texas, February 19-21, 1975. The Working Group concurred with the priority of ARS, USDA importation program for control of plant bugs, Gypsy moth, grain aphids and dipterous leafminers. The priorities have been assigned on the basis of (1) economic importance of the target species, (2) potential for success, (3) availability and interest of research workers for conducting domestic phases of the research, and (4) current and potential resources required and/or available for overseas and domestic quarantine activities. The Working Group suggested that whenever possible, information on foreign exploration trips, such as personnel, dates and areas, be made available to other workers through the IOBC Western Hemisphere Newsletter. It was felt that this information will enable other personnel to contact the prospective explorers and request them to search and collect additional material while in certain areas.

Dr. Jack Coulson (Chief, Beneficial Insects Introduction Laboratory ARS, USDA, Beltsville, MD 20705, USA) indicated that ARS has laboratories in Paris, Rome, and Buenos Aires and is planning to establish one in Japan with the mission of exploring, collecting, and sending to U.S. exotic bioagents. He invites scientists to visit these laboratories when in the areas.

(b) Exploration

Mr. George Vogt of the Southern Weed Science Laboratory (USDA, ARS) traveled recently to South America to survey for and collect biological suppressants found attacking certain terrestrial and aquatic plants which have become weedy in the United States, particularly in the southeastern section.

Terrestrial weeds targeted for intensive effort included *Amaranthus* spp. (Amaranthaceae), *Anoda cristata* and *Sida spinosa* (Malvaceae) and *Sesbania* spp., primarily *exaltata* (Leguminosae). The aquatic weeds that were to be concentrated on included *Alternanthera philoxeroides* (Amaranthaceae), two species of *Egeria* (Hydrocharitaceae) and *Myriophyllum brasiliense* (Haloragaceae). Mr. Vogt's schedule called for travel in Brazil, Uruguay, Paraguay, Bolivia and Ecuador with efforts concentrated in the Parana River basin which has many ecological similarities to the Mississippi River valley. In Argentina his headquarters were to be with the Biological Control of Weeds Laboratory at Hurlingham near Buenos Aires. Ing. Agron. H. A. Cordo is head of that laboratory.

(c) Summary Report on Travel to Brazil and Colombia, South America, Feb.- Mar. 1975

A survey was conducted in Brazil and Colombia for biotic agents associated with the velvetbean caterpillar, *Anticarsia gemmatilis*, and other pest insects occurring on soybeans and related leguminous plants. The velvetbean caterpillar was attacked by 2 species of parasites in the genus *Microchamps*, an apparently new species of *Euplectrus*,

and 2 fungi, *Nomuraea rileyi* and *Entomophthora* sp. The fungus *N. rileyi* was also found associated with *Plusia nu*, *Pseudoplusia includens*, and *Spodoptera eridania*, the latter species also being attacked by the parasites *Meteorus laphygmae* and *Euplectrus plathy-penae*. A new species of *Euplectrus* was obtained from an unidentified noctuid larva, and a new species of *Ardalus* from *Urbanus proteus*. Parasites and pathogens associated with *Heliothis virescens* and *Diabrotica* sp. were also recorded.

Benjamin Puttler
Biological Control
of Insect Research Laboratory
USDA, ARS
Columbia, Missouri (USA)

WEST PALAEARCTIC REGIONAL SECTION (WPRS)

(a) General Assembly

The second General Assembly of the West Palaearctic Regional Section was held in Madrid and Teruel (Spain) from 7 to 11 October 1974. One of the principal aims of the General Assembly was to analyse the work carried out by the Organization since the last General Assembly held in Rome in 1971. The reports and papers on which this analysis was based are published in WPRS Bull. 1975/1, which gives an almost complete review of the progress achieved in the field of biological and integrated control in the West Palaearctic Region.

(b) Commission of taxonomy of entomophagous insects

The Identification Centre of Geneva, Switzerland, which has been functioning for 17 years, has now been replaced by two centres, both in the Federal Republic of Germany. One of them is located at the Staatliches Museum für Naturkunde, Arsenalplatz, 715 Ludwigsburg, and is concerned with Diptera and Neuroptera. Material for identification has to be addressed to Dr. B. Herting, who is in charge of the centre at Ludwigsburg. The other centre is located at the Zoologische Sammlung des Bayerischen Staates, Entomologische Abteilung, Maria-Ward-Strasse 1 b (Schloss Nymphenburg), 800 München 19, and is concerned with Hymenoptera, Coleoptera and Neuroptera. Material for identification has to be addressed to Dr. F. Bachmaier, who is in charge of the centre of Munich. When material is submitted for identification, please include the data on hosts, localities, dates of emergence, etc. These data will be used by taxonomists and then published in the identification lists issued by the centres.

PACIFIC REGIONAL SECTION (PRS)

Brown plant hopper on rice in the Solomon Islands

In 1974 it was noted that the varieties of rice grown commercially in Guadalcanal on the Plains became heavily attacked by the brown plant hopper (BPH) (*Nilaparvata lugens* Stal.). The varieties grown had all been declared resistant to the BPH by the International Rice Research Institute at Los Baños in the Philippines and had been successfully grown for about 1-1/2 years when they dramatically broke down and were invaded by the BPH so that recourse had to be made to insecticides. A new variety, IR 26, also broke down as it was being multiplied for seed. It was suggested that the problem arose because of the presence of a biotype of the BPH to

which the varieties were no longer resistant. About 20 generations of the plant hopper could have developed upon the rice varieties during the period that they were grown. However, rice grown 10 miles away was also attacked in the same way as were varieties grown in plots on another island, over 50 miles away, where rice had never been grown before. The BPH attacked resistant varieties there, but conclusive evidence of the strength of the attack was not obtained.

The whole problem of the devastating attack of BPH appears to be one of density. The populations of BPH build up to such high levels that rice succumbs within 40 days unless sprayed. Spraying is not very successful because of the high densities involved and the general aerial population over the rice fields.

At the end of 1974, it was decided to fallow the rice fields, and no rice was planted for a period of about 2 months. A trial variety sown during February carried a low population of BPH but the commercial rice fields were not planted until March. Crops covering about 250 acres came through to harvest completely free of BPH. The fallowing had undoubtedly brought the population of the BPH down to a very low level but as the insects were still present in the area, it was surprising that the populations did not increase on the growing crops. Obviously some other factor intervened to prevent the BPH build-up that would have been expected. Undoubtedly this external factor was the invasion of the rice fields by the insect *Cyrtorhinus* spp., a well-known predator on BPH. Normally *Cyrtorhinus* did not appear in rice fields but often invaded rice plots because the area under rice was small in comparison with the surrounding areas of grass. In commercial rice fields, the presence of *Cyrtorhinus* in large numbers arose from the abandoned rice field which grew weeds and rice under dry conditions and allowed both *Cyrtorhinus* and the BPH to develop. The *Cyrtorhinus* in due course invaded the commercial irrigated rice. *Cyrtorhinus* is an effective predator on BPH provided it is given

a chance to build up. It lives in a community with the BPH, depositing eggs in the same rice stems. The nymphs are very active and quickly swarm over the rice among the more sessile BPH early instars, bringing the BPH infestation under complete control. *Cyrtorhinus* populations had undoubtedly built up in the abandoned rice fields which had previously been continually under crops of irrigated rice. This leads to the conclusion that, in order to utilize the valuable preying habits of *Cyrtorhinus*, it is necessary to encourage them by providing a habitat where they can multiply unmolested. This possibility already exists in rice varieties which show the property of tolerance in contrast to resistance to the BPH. Tolerant varieties allow the BPH to invade and breed upon them without succumbing to the effects of the attack as do susceptible varieties. If it is possible for a variety to remain still upright in the face of BPH attacks up to 40 days after sowing there is time enough for the rice to be invaded by *Cyrtorhinus*. On the other hand, varieties showing total resistance to BPH harbor no *Cyrtorhinus* and none will enter the rice in the absence of BPH; there is no reservoir of *Cyrtorhinus* should the resistance fail. Tolerant varieties would appear to be a better proposition than those totally resistant. Information on the effects of the above procedure are available from plot trials and it is hoped to gather similar information from commercial rice.

J. H. Stapley
Ministry of Agriculture and Rural Economy
Br. Solomon Is. Protectorate

COMMONWEALTH INSTITUTE OF BIOLOGICAL CONTROL (CIBC)

(a) New successes

— *Aphytis roseni* introduced from Kenya achieves effective control of *Selenaspis articulatus* in areas of Peru where pesticide application does not interfere with the parasite.

(b) The following other natural enemies shipped by CIBC have also become established in various countries:

Natural enemy	Pest/Weed	Country	Origin
<i>Campoplex</i> sp.	<i>Coleophora fuscadinella</i>	Canada	Europe
<i>Grypocentrus albipes</i>	<i>Fenusa pusilla</i>	- do -	- do -
<i>Chrysocharis larinellae</i>	<i>Coleophora larinella</i>	U.S.A.	- do -
<i>Puffus impexus</i>	<i>Dreyfusia</i> spp.	Sweden	Germany
<i>Trichogramma perkinsi</i>	<i>Chilo infuscatellus</i>	India	S. America
<i>T. fasciatum</i>	<i>Chilo partellus</i> and <i>Tryporyza nivella</i>	India	U.S.A. and S. America
<i>T. brasiliensis</i>	<i>Heliothis armigera</i> and cotton bollworms	- do -	S. America
<i>Pteromalus luzonensis</i>	<i>Papilio polytes</i>	Guam	India
<i>Ooencyrtus erionotae</i>	<i>Erlonota thrax</i>	Mauritius	Sabah (Malaysia)
<i>Agglomatus</i> sp. nr. <i>sumatraensis</i>	- do -	- do -	- do -
<i>Apanteles erionotae</i>	- do -	- do -	- do -
<i>Metzneria paucipunctella</i>	<i>Centaurea maculosa</i>	Canada	Europe
<i>Longitarsus jacobaeae</i>	<i>Senecio jacobaeae</i>	- do -	- do -
<i>Urophora stylata</i>	<i>Cirsium vulgare</i>	- do -	- do -
<i>Ammalo insulata</i>	<i>Eupatorium odoratum</i>	Sri Lanka and Sabah (Malaysia)	Trinidad
<i>Coleophora parthenica</i>	<i>Salsola iberica</i>	U.S.A.	Pakistan
<i>Octotoma scabripennis</i>	<i>Lantana camara</i>	Ghana	Mexico

— *Pediobius foveolatus* shipped from India to the U.S.A. has been giving high levels of parasitism of *Epilachna varivestis* in Maryland.

— CIBC work on bagworms and other leaf-eating pests of oil-palms in Sabah (Malaysia) has helped to reduce the costs of pest control by nearly one-half to two-thirds, mainly due to re-establishment of natural balance as a result of encouraging certain flowering plants used by parasites and predators for shelter and as alternative sources of food. Limited use of a non-occluded virus of *Darna trima*, a NPV of *Thoesa bisura*, and the fungus *Cordyceps* sp. on *Thoesa* spp. and *Setora nitens* has also helped.

— In Canada, *Urophora affinis* introduced against *Centaurea* spp., *Ceutorrhynchus litura* against *Cirsium arvense* and *Rhinocyllus conicus* against *Carduus nutans* (all from Europe) built up higher population levels in 1974 than in the previous year, with significant reductions in the weed infestations.

PUBLICATIONS OF INTEREST

Goeden, R. D., L. A. Andres, T. E. Freeman, P. Harris, R. L. Plenkowski, and C. R. Walker. 1974. Present status of projects on the biological control of weeds with insects and plant pathogens in the United States and Canada. *Weed Science* 22: 490-495. As the title indicates, some 78 weed species or genera previously and currently targeted for biological control with phytophagous insects or phytopathogens in the United States (including Hawaii) and Canada are listed in this report. The current status of and natural enemies involved in national, federal, state and university biological weed control projects are tabulated. This report was prepared by the 1973 Biological Control of Weeds Committee (Special) of the Weed Science Society of America, which included several IOBC members. Copies are available from the authors.

Harper, J.D. 1974. Forest insect control with *Bacillus thuringiensis*: Survey of current knowledge. Auburn University, Agricultural Experiment Station, Auburn, Alabama, USA.

Metcalf, R. L. and W. H. Luckman. 1975. Introduction to insect pest management. 1975. John Wiley and Sons, N. Y.

The CIBC Annual Report 1974 is now available for distribution. During 1974 CIBC sent 615 shipments of 137 species totalling some 9,250,900 beneficial insects etc., to 32 countries.

A review of the work on predators, parasites and pathogens for the control of *Oryctes rhinoceros* (L.) in the Pacific Area. CIBC Misc. Publ. No. 7, 64 pp. (Price £. 2.50).

Proceedings of the 3rd International Symposium on Biological Control of Weeds. CIBC Misc. Publ. No. 8, 140 pp. (Price £. 4.00). (Copies of the CIBC publications may be obtained from C.A.B., Central Sales, Farnham House, Farnham Royal, Slough, SL2 3BN, England).

Turdok, The Scientific and Technical Documentation Centre of the Scientific and Technical Research Council of Turkey, has initiated the project of preparing a worldwide list of forthcoming national and international scientific and technical meetings, conferences, exhibitions, etc. The Bulletin, «National and International Meetings on Science and Technology» is planned to be issued quarterly (January, April, July and October). The first issue is dated January 1975. Information regarding forthcoming meetings is solicited and entries should include the date, title, location of the meeting and a contact point for further information. The subject and official language of the meetings are indicated in the bulletin when provided. The address is Turkish Scientific and Technical Documentation Centre, Ataturk Bulvari 225, Kavaklidere, Ankara, Turkey.

A very limited number of copies are available of the Proceedings of an Integrated Pest Management Workshop on Evaluation of the Role of Predators in Crop Ecosystems, sponsored by the International Center for Biological Control - NSF/EPA Integrated Pest Management Project (Feb. 1974, New Orleans, La.) 34 p. mimeo. Contents include: I. Employment of radio-labeling, neutron activation, electrophoresis, elemental marking and precipitin techniques in predator studies. II. Qualitative observations, and correlative approaches using

predator-prey ratios and exclusion methods. III. Use of Life Tables. IV. Monitoring and sampling problems. V. Problems posed and progress in modeling predation. References and list of conferees. There is no charge for this pamphlet which will be mailed surface mail on request to International Center for Biological Control, 1050 San Pablo Avenue, Albany, CA 94706.

IOBC/WPRS - Integrated Control in Orchards. - Proceedings of the 5th Symposium held in Bolzano, Italy, 3 to 7 September 1974, 369 pages. Editor of the Proceedings Dr. L. Brader, Secretary of WPRS, now with FAO, Plant Protection Service, Plant Production and Protection Division, Viale delle Terme di Caracalla, 00100 Rome, Italy.

WANTED

Help in finding parasites of a scolytid, *Xylosandrus compactus* (Eichh.) (= *Xyleborus morstatti* Hagedorn), which is seriously damaging degwood, *Cornus florida*, in Florida. The beetle is commonly called the «black coffee twig beetle», and it is a serious worldwide pest of «robusta» variety coffee. R. C. Wilkinson
Dept. of Entomology and Nematology
University of Florida
Gainesville, Florida 32611

Obituary

We regret to announce the death of Dr. J. McB. Cameron at Sault Ste. Marie, Ontario, Canada, on January 4, 1975. He was a Vice-President of WHRS for 1971-72, a member of the WHRS Policy Guidance Committee and Chairman of the WHRS Working Group on Biological Control.

Our thanks to those who have taken the time to contribute to this issue of the Newsletter. Contributions are solicited from all of our readers; they may be sent at any time and will be held for the issue following receipt of the item.
Editors and organizers of this issue:
C.B. Huffaker, V. Delucchi, T. Sankaran.
August 1975.

INTERNATIONAL
ORGANIZATION
FOR BIOLOGICAL
CONTROL

IOBC

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DRUCKSACHE