

Red Palm Weevil

(*Rhynchophorus ferrugineus*)

Romano Natur GmbH
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Product (Patent) **The present patent (invention) is a new mixture of active ingredients that completely eliminates *Rhynchophorus ferrugineus* infestations on palms and other crops.**

Inventor Romano Natur GmbH has identified a special synergistic parasitocidal composition based on a synergistic mixture of several active ingredients. This is able to quickly and efficiently eliminate infestations of ***Rhynchophorus ferrugineus***.

Effect The composition is a mixture of selected insecticides that develops a simultaneous attack against a variety of physiological and detoxifying mechanisms of the parasite.

The composition consists of several active ingredients, some of which are used primarily in micro-rover encapsulated form. The inventors have also studied and optimized the best ratios of these active ingredients to achieve maximum efficiency.

The pesticide is a systemic pesticide whose active ingredients are absorbed through the leaves and/or roots and transported to the rest of the plant. These systemic pesticides are able to spread through the xylem and or phloem, reaching the growing vegetative parts or the roots and other underground organs.

Compatibility The product was found to be non-toxic to the plants during the research. It was surprising to observe that many trees found to generally improved trophics and thus more resistant to a new infestation, respectively also developed a better ornamental effect.

More details Find in the summary, in English and Italian, which is attached to this flyer. More detailed information on the present composition can be requested by signing the confidentiality agreement with Romano Natur GmbH.



Political and economic relevance

EU steps up support to combat dangerous pests

Brussels, November 16, 2011 – The European Union is today providing €19 million to co-finance programs in seven Member States to control plant pests and prevent their further spread in the EU to avoid serious consequences for the internal market.

Commission Decision (2010/467/EU) of 17 August 2010

amending Decision 2007/365/EC as regards susceptible plants and measures to be taken if *Rhynchophorus ferrugineus* (Olivier) is found (notified under document number C(2010) 5640) Official Journal L 226 , 28/08/2010 P. 0042 - 0045

Commission Decision of 6 October 2008

amending Decision 2007/365/EC on emergency measures to protect the Community against the introduction into and the spread within the Community of *Rhynchophorus ferrugineus* (Olivier), notified under document number C (2008) 5550

Commission Decision (2007/365/EC) of 25 May 2007.

on emergency measures to protect the Community against the introduction into and the spread within the Community of *Rhynchophorus ferrugineus*, Official Journal of the European Union No. L 139, 31.5 2007, p. 27.

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International Organizations Authorities & Conferences

Entomological Society of America (ESA) annual meeting; Can Entomologists Stop The Threat of Invasive Palm Weevils, (*Rhynchophorus*) spp.? **November 15, 2011, Reno, Nevada International Conference in Valencia, Spain 4-6 May 2010**

Laboratoire national de la protection des végétaux, Paris: Red Palm weevil control strategy for Europe. Official identification of RPW by French NPPO (infested palm tree or trapping of an adult in a pheromone trap) will cause the implementation of the emergency measures

United States Department of Agriculture (3/2011-1 Emergency and Domestic Programs) New Pest Response Guidelines: Red Palm Weevil as a guide when designing a program to detect, monitor, control, contain, or eradicate an infestation of *Rhynchophorus ferrugineus*.

Regione autonoma della Sardegna (Dec 2010) (Tavolo Technico difesa fitosanitaria piante forestali) Programma triennale di eradicazione del Punteruolo rosso delle palme (*Rhynchophorus ferrugineus*) nella regione Sardegna

41st Annual Meeting of the Society for Invertebrate Pathology and the 9th International Conference on *Bacillus thuringiensis* (incorporating COST862 Action* Bacterial Toxins for Insect Control) was held at the University of Warwick, United Kingdom, from the 3rd – 7th August 2008.

The varmint (Summary)

The red palm weevil (*Rhynchophorus ferrugineus*), also known as the red palm weevil, is a member of the weevil family and can cause severe damage to agriculture and horticulture. It is more destructive and persistent than any of its predecessors. With a proboscis that looks like a beak, the *Rhynchophorus ferrugineus* turns a palm tree that may well reach a proud age of more than a hundred years into a puny carcass of itself in just one year.

It attacks a wide range of different palm species. However, it is also found in sugar cane, pineapple, banana and sago. Some other plant species are suspected, such as aloe vera and agave, but have not yet been definitively confirmed.

Homeland

Its homeland is the Indonesian region. In an intact ecosystem it does not pose a problem. It has a large number of counterparts ranging from insects to reptiles and mammals. This circumstance seems to be the reason for the enormously high reproduction rate. The high reproduction rate is necessary for the existence of the species. The situation is even more dramatic when the Red Palm Weevil is introduced into regions where there are no counterparts adapted to it.



Red Palm Weevil, Palm Weevil or Rhynchophorus ferrugineus.

Infestation

The Red Palm Weevil is not comparable to the infestation scenarios of other insects, because it has a **very complex biology and ethology**. A single beetle lays more than 200 eggs from which hungry larvae emerge to complete the work of the parents. Another problem results from the fact that the infestation produces visual symptoms only in the final stage. **Once this point is reached, it means at the same time that the first adults leave the mother plant and infest new plants.**

Combating

Control options using traditional methods are futile. **Pheromone/kairomone traps are not applicable because the risk of attracting the beetle to previously uninfested areas is too high.** The beetles are also extremely resistant to common plant poisons. The use of pesticides has also been of little help so far because the beetle and its developmental stages are ultimately partially protected by the plant. Until now, it was not possible to determine whether all plant areas were reached in the necessary concentration of the poison.

Until now, the trees were simply burned. However, this did not prove to be particularly effective either, because to make matters worse, the red beetle can also fly. So it calmly buzzes away when its home is on fire and looks for a new palm tree.

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Expansion in Europe

The beetle is originally from **Southeast Asia**, and spread through the **Middle East** and **Morocco**. Through the importation of palm trees, it was introduced into **Spain, Italy, Greece, France and almost all Mediterranean countries**. It was also detected in Mallorca in 2006 and has since caused millions of dollars in damage. According to the European and Mediterranean Plant Protection Organization (EPPO), the beetle is now also threatening the Elche palm forest in **Valencia, which is a Unesco World Heritage Site**. The plantation, which was already nurtured and cared for by the Carthaginians, Romans and Moors, contains more than 200,000 palm trees. An economic disaster, because the cultural highlight brings streams of tourists and thus money into the region.

Expansion worldwide

Recently, the **Red Palm Weevil** has also been discovered in the USA (California, October 2010) and in South America (Philippines).



Market potential

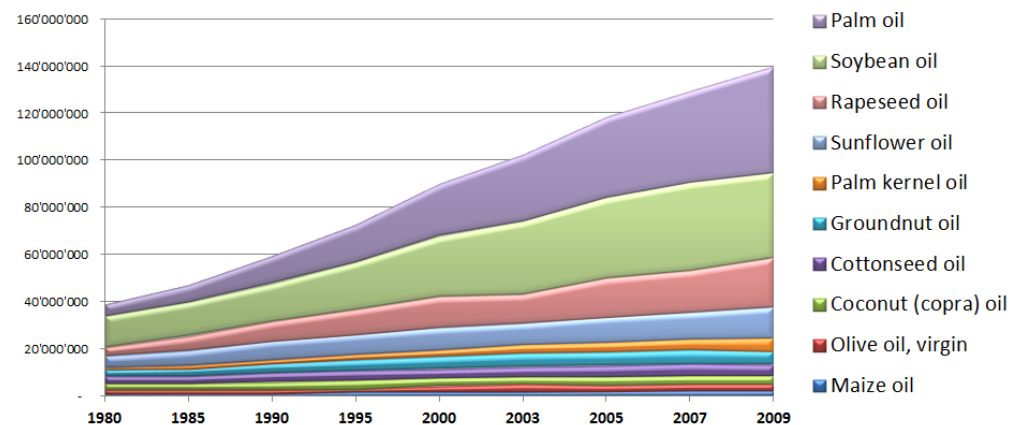
In addition to the countless decorative palms decorating entire promenades and streets in southern Europe, as well as the palms kept in private or public parks and gardens, palm oil production must not be neglected.

The oil palm (*Elaeis guineensis*) is one of the most economically important palm species. Originally native to Africa, it is now also cultivated in tropical America and especially in Southeast Asia. The palm, which can reach a height of 30 meters, produces fruit clusters weighing up to 50 kg with 3,000 to 6,000 fruits.

Palm oil market volume

Weltweite Pflanzenoel Produktion seit 1980 (in Tonnen)

Quelle: <http://faostat.fao.org/site/636/default.aspx#ancor>



Red Palm Weevil

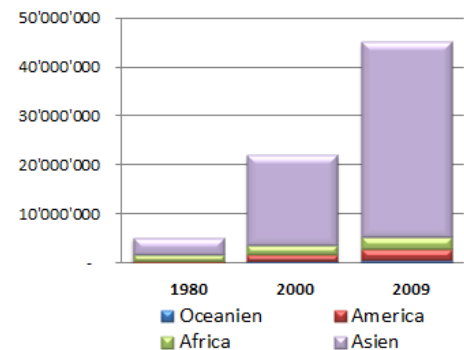
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Oil palm

With a 30% market share, palm oil is the world's most important vegetable oil, ahead of soybean and rapeseed oil. In recent years, world production of palm oil has risen by more than 15% per year in some cases. In 2009, **46 million tons of palm oil were produced worldwide.** For comparison, in the year 2000 it was still around 22 million tons. **With a production of about 40 kg per palm, the current tree population can be estimated at about 1.1 to 1.4 billion.**

Palmoelproduktion (in Tonnen)



Ornamental palms

Phoenix canariensis is a pinnate palm whose native land is the Canary Islands. It reaches a height of up to 15 m and has a trunk that is rough on the surface. It is probably the best known representative of the pinnate palms and the most sold tub palm. Old specimens have a very thick trunk and, in addition, a crown formed by countless fronds. It is cultivated exclusively as an ornamental plant.

Palm trees are found worldwide in tropical and subtropical areas. The greatest diversity of species is found in tropical rainforests, but palms also grow in some seasonal or semi-arid areas. In the north, the range of palms extends to about 44° north latitude in southern France, and in the south slightly above 44° in the Chatham Islands near New Zealand. The palm family or palms (Arecaceae or Palmae) contains 183 genera with about 2,600 recent species.

Headlines from the press and in published research on the Red Palm Weevil.

Saudi Arabien

Pheromone trap density to mass trap *Rhynchophorus ferrugineus* in date plantations of Saudi Arabia

International Journal of Tropical Insect Science Vol. 31, 2011

Shanghai

Pest risk analysis of *Rhynchophorus ferrugineus* in Shanghai area

Shanghai Forestry Station, Acta Agriculturae, 2008-01

China

Diagnosis and Control for Damage of *Rhynchophorus ferrugineus*

Journal of Anhui Agricultural Sciences, 2009-02

California

Palmagedon: Are California's Palms about to Face the Perfect Storm? Red Palm Weevil in Laguna Beach Dealt a Second Blow | Invasive species rise after 9-11

By Mark Hoddle | July 24, 2011

Links:

Entscheid der Kommission der Europäischen Gemeinschaften

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2007:139:0024:01:DE:HTML>

University of California, Riverside

http://cisr.ucr.edu/red_palm_weevil.html

Red Palm Weevil Homepage of the College of Agri. & Food Sciences, King Faisal University Alhassa, Saudi Arabia, by Mr. Khalid Alhudaib M.Sc. (Virology)

<http://www.redpalmweevil.com/newlook/index2.htm>

Wikipedia; die freie Enzyklopädie, *Rhynchophorus ferrugineus*

http://de.wikipedia.org/wiki/Rhynchophorus_ferrugineus

The Chair of Red Palm Weevil Research at King Saud University, Saudi Arabia,

<http://www.rpwrc-ksu.org/>

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Explanation of the product The palm trees (*Phoenix canariensis*) in the garden of Mr. Giuseppe Romano were infested by the **Red Palm Weevil**, which can be seen in the holes drilled in the leaves (1) and their attachment.

It was surprising to observe that the palms treated with the product entered into a second flowering phase after the elimination of the infestation. This showed not only the good tolerance of the dosage used, but also the perfect recovery of the functions as before the infestation, as well as a generally improved trophic (2).



Active ingredients The composition is a mixture of selected insecticides that are **individually** already **approved by the authorities** and commercially available.

The EU monitors the distribution and use of plant protection products or pesticides and sets standards for the monitoring and control of pesticide residues. It takes preventive measures against the introduction and spread of pests in the EU.

Patent The present composition was invented by Giuseppe Romano and is owned by Romano Natur GmbH. This mixture is protected worldwide, by the international **PCT application (Patent Cooperation Treaty)**.

The patent application protects in extended application, so the tested composition and its variants, either in dry or liquid form, as well as its manufacturing process.

The patent also protects the use of this mixture for the treatment of *Rhynchophorus ferrugineus* infestation. More detailed information about the present composition can be requested by signing the confidentiality agreement with Romano Natur GmbH.

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