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Information about the Environment and for travellers in Crete:

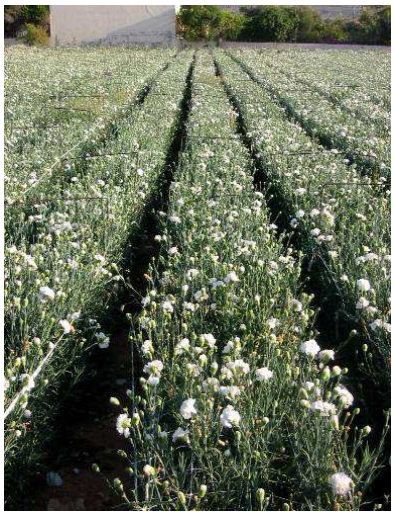
Carnations: the ZEUS-Flowers are (also) cultured on Crete!

Carnations (*genus Dianthus*) form a genus of dicotyledonous plants in the family of the pink family (*family Caryophyllaceae*). The glove does not belong to this genus. The blossom of the carnations has been held by *Carl von Linné* in the botanical name *Dianthus*, i.e. **Zeus flower** (Greek: dios anthos). In the Middle Ages the carnation was a symbol for the Blessed Mother Maria.

Carnations are perennial, rarely annual flowers with narrow sheets. The calyx is tubularly, has five petals and at the base surrounded by two, four or six broad bracts. The petals are usually notched or slit and have every now and then a beard (sub-crown). The bloom possesses ten stamens and two styluses. The cap is petiolate and being located in the calyx and opens at its top in four “teeth” or short flaps. The geographic range covers Europe and Asia, with few South African kinds.

Carnations accompany humans since earliest time. They are known for their medical application with stomach upset and fever. Carnation smell was used for vinegar, beer, wine, sauces and salads. Also “glacé blooms” are also known as meal.

Today the carnation is mainly used as ornamental plant and carnation producer are found world-wide; the largest are in Colombia. On Crete the carnation breed takes place both in the open land and in greenhouses. Economically of small importance, they are bred mainly in regions of the north and south coast, primarily for the home markets.



The photos are showing pictures from the carnation breed on Crete: left in open land and right in the greenhouse. The centre picture is a detailed view. The plant is protected against break off with a vertically adjustable wire netting. On the soil laid hose systems provide for a sufficient irrigation. The “harvest” is a very time intensive pure manual work.

Carnations should be stored with 4 to 8 degrees Celsius. For the care with the consumer the reference: cut off some centimeters of the stem diagonally with a sharp knife and place the carnations into a vase with fresh, lukewarm water. Carnations possess a good durability, which can be positively increased by the addition refreshing agents. The leafs should not hang in the water, so that a fast contamination is prevented. Carnations on Crete are available all year long, whereby the season for the cultivation is in the time between May and end of October.

Wild carnations on Crete appear in a dozen species; among them 9 species which grow on Crete only (endemic). So far the following species were proven:

Dianthus xylorrhizus, Dianthus sphacioticus (= Sfakia-carnation, endemic on Crete in the alpine area), *Dianthus strictus* (see picture), *Dianthus tripunctatus, Dianthus juniperinus* subsp. *juniperinus* (endemic within rocky areas), *Dianthus juniperus* subsp. *heldreichii* (endemic in West-Crete), *Dianthus pulviniformis* (endemic in South - and Central Crete), *Dianthus aciphyllus* (endemic in East Crete), *Dianthus aciphyllus* var. *bauhinorum* (endemic in Central Crete), *Dianthus arboreus* (endemic on Crete in the low mountain range), *Dianthus fruticosus* subsp. *occidentalis* (endemic in West Crete) and the subsp. *amorginus* (endemic at the island Dionysiades).

Symbiosis between "**butterflies"** and pinks (?)!

The existing relational system between pinks and butterflies are in the interest of the science lately. The moths of the varied coronet (Noctuidae: *Hadena ssp.*) put their eggs into the blooms of different kinds of carnation (e.g. Dianthus) and the grubs eat the ripening fruits. Such a plant insect interaction, where insects in blooms, which they pollinate, reproduce themselves, is evolutionary from special interest. At present it is examined whether there are chemical differences between male and female blooms, and if, whether the female moths use such substances, in order to differentiate between the blooms of both sexes (the eggs are put only into female blooms!). The crucial role during identification of the host and the recognition of the bloom sex probably plays the smell of the bloom the carnation. The ingredients *toluene* and *methylbenzoat* are in all probability the stimulants for the egg deposition; latter ingredient is, at the same time, also a stimulant for the food intake. The recognition of the bloom sex thereby takes place with high probability due to components of the smell of male blooms, which block the egg deposition behavior of the moth. A substance, which is in line for this, is probably *phenylacetaldehyd*. A comparison of harm and benefit for the plant admit the statement with almost absolute certainty that the interaction cannot be classified as parasitism, but as symbiosis.

The pictures show the varied coronet (*Hadena filograna*) and a egg of the lychnis (*Hadena bircuris*) at a immaturity seed vessel of red campion (*Silene dioica*)

Pictures: (3) *U. Kluge* / **(2)** *H. Eikamp* (2005)