



## Information about the Environment and for travellers in Crete:

### Potato back, Potato forth: *Solanum tuberosum* It's aggrandised on Crete! Potato beetle



Since the Spaniards brought the potato from America to Europe more than 400 years ago, it's not possible to imagine our diet without it. The number of publications about the cultivation of potatoes are innumerable; "in common-useful" was already published 1843 in "daily papers" (see img.) and today, in the age of the computer, one can inform in the Internet "round around the potato". Cultivation rules and forms as well as single topics such as potato surfaces, climatic and requirements for soil, crop sequencing and preceding crop impact, planting bed preparation, potato sorts and their yields, need and preparation of the planting property, planting rules and planting distance, nutrient withdrawal and nutrient gifts, plant protection and fertilization, harvest, work time need like also potato prices are today in electronic form callable. Above that field exhibitions - like "Potato 2005" (European potato days in the Netherlands) or the "European potato days 2006" by the DLG in Germany (also the publisher was active within their initiative group) - offer the possibility, to inform "locally" about the cultivation of potato (about cultivation comparisons, machine demonstrations and the presentation of many industries taking part at the creation of value chain of the potatoes). Even a potato museum (probably the only one in the world, in Haidhausen near Munich) informs in detail about the "thickness tuber"; see in addition [www.kartoffelmuseum.de](http://www.kartoffelmuseum.de).



A general problem in the potato growing is the bacterial ring rot (*Clavibacter michiganensis* ssp. *sependonicus*), which counts to the notifiable potato diseases. Due to the valid potato ring rot regulation from July 1981, each potato producer is obligated to announce the occurrence of cases of suspicion to the responsible authority. The bacterial ring rot can cause harvest losses by approach damage, which can amount to up to 20%. In case of table- and food potato's Germany is, with 106 infestation portions is behind Greece (Crete) with 183 infestation portions, at the second place. Measures for the fight against this potato illness are at present plant hygiene and the strict adherence to the guidelines from the regulation 93/85/EWG of the European union.

A first historical connection between the potato and Crete originates from the 16<sup>th</sup> Century, where Crete was considered as center of the plant trade and is mentioned in literature as "transshipment point of the potato". Maybe the traditional cultivation of potato on Crete dates back to this, which originally served (and still today) the self-sufficiency.

One of the most well-known cultivation regions for potatoes on Crete is the Lassithi Plateau. It supplies allegedly the qualitatively best "earth apples". The "Public diet" potato (*Solanum tuberosum*) belongs to the family of the nightshade family and contains about 87 kcal/100 g and thus about as much as apples. Potatoes are a good and cheap source of vitamin and mineral material, in particular if they are prepared with the skin. Beside B-Vitamins potatoes contain iron and traces of copper and other mineral materials. "Improving products" of the potato are the universally known "French fries" and "crisps". Likewise from the potato won potato flour is an important renewable resource, whose employment is not only limited to the food sector. Due to its structure it is used for products in different areas of application. Industrialist main customers are paper factories, textile entrepreneurs and manufacturers of binding and bonding agents.



The potato is not bred on Crete; the cultivation of potato serves only the reproduction. Thereby the creation of seeds concentrates only on few cultivation areas. At the Lassithi Plateau, the potato is cultivated by resources-poor farmers on small yards (and surfaces), who have only few alternatives to the cultivation of potato in a very close rotation. The co-operation of these farmers is not ideal, which leads to difficulties with the collection of information, but also by the proper conduct of guidelines (and the resulting measures of it).



The pictures are showing (from left to right): store room for potato seed in Agios Konstantinos, besides its potato fields in Plati. The centre picture shows a bigger crop area whose yields are intended for the self-marketing; picture right a smaller crop area whose yields serve the self-sufficiency.

## Potato beetle, *Leptinotarsa decemlineata*

The potato beetle is a parasite of the potato plant, which today is common world-wide. Originally he came from America, from where he was brought to Europe in 1877.

The about 1 cm large beetle is yellow, whereby its neck scute presents black marks and the elytra ten dark stripes. The potato beetle and its larvae nourish themselves by parts of the potato plant (and other solanaceae). The beetles lay eggs in June, from which the larvae slip after already 3 - 12 days. The larvae are reddish with black points (see fig.). After approximately 2 - 4 weeks these creep into the earth, in order to pupate there. After approximately 2 weeks the potato beetle then slips, it however remains for at least 1 week in the soil. There are 1 - 2 beetle generations per year. The potato beetle hibernates in the soil.



Apropos soil ... on the 3<sup>rd</sup> of May 2005 the publisher took a soil sample from the Lassithi Plateau (mixed sample of a field) and send this to the LUFA (Hessian research laboratory Kassel, agricultural investigation and research institute) for evaluation and screening /Tgb no. 20132; testing method according to DIN ISO 11464. Therefore the sample of soil is a types II (= middle) with a clay content of 13.25%. The pH value is with 6.8, which applies as high in this group of soil types and refers to a sufficient supply. The supplying stages (nutrient content classes) are (in mg/100g) for P<sub>2</sub>O<sub>5</sub> with 19 (= highly), K<sub>2</sub>O with 15 (= medium) and Mg at 13 (= high to very high). With an humus content of < 4% the soil is suitable for any cultivation of field crop; a green manuring in order to obtain a better nitrogen enrichment would be best to upgrade it as "potato-suitable". In addition a crop rotation should be kept that means that potatoes are cultivated on the same location only again at the earliest after 4 years.

**Pictures:** (2) U. Kluge / (1) H. Eikamp (2005)

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