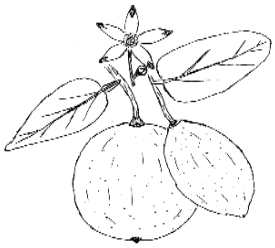

Limette

Newsletter Citrus Friends Europe **Special Issue**

Seramis Granulatum for Citrus

Seramis - Whats that?

Well, we knew all, that Citrus requires a special care and special potting mixture, especially for container grown citrus. Well, this Limette Special Issue should tell you about a special, soil less, anorganic potting granulatum. It was developed by the company Effem in Germany, as a complete set of potting granulatum, moisture sensors as irrigation time display and special developed fertilizers.

Seramis is made of clay. The clay is washed, cleaned and then compressed in a special shape. With air the clay is made very poros and then it is burned and crunched into small pieces. Piece size is approximately betwen 3 mm to 8 mm, and the pieces act like little sponges. Seramis is very light, but can douple its weight by taking up water. The used clay is in chemical mainly Aluminum-sillikates, so the chemical pH reaction is neutral, around pH of 7.

This granulatum is used as potting mixture. The granulatum pieces will not decompose, and he granulatum will not compress. The pieces are allways loose, aeration and drainage is allways given and will never lead to rotten roots by a compressed, decomposed substratum.

Because of the high water conservation inside the pieces, irrigation is only 2 times up to 4 times less need, than in common potting mixed on turf or compost base.

Into the granulatum a special moisture sensor is placed. The sensor has a small display, which shows a red foliar if irrigation is need, and will turn to blue if moisture in the root-ball is good.

The moisture sensor shows the time of irrigation, and the amount of water to irrigate is a quart of the pot volume, not more. All the water will be stored inside the granulatum pieces, no free water should exist inside the pot.

Usually a water-tight pot is requiered, to give full performance of the system, but for outdoor culture a special modification will also make the system operateable outdoors.

The fertilizer is a irrigation fertilizer, which will given into the irrigation water on every irrigation schedule. The fertilizer has a very low dosage, because the roots get directly in contact with the fertilizer water mixture. The low dosage will prevent root burn by salt damage. Together with irrigation water the pH of the media will be at pH of 6 up to pH of 7,5.

So granulatum, moisture sensor and fertilizer together act as a complete growing kit.

Citrus in Seramis

Many nurseries, gardenstores and citrus growers have their own citrus potting mixture for growing citrus, but repotting, irrigation times and fertilisation are often somewhat tricky, especially for large collections and less experienced growers. Seramis may be the best choice for these circumstances..

The roots grow into the pieces, without sticking to the potwalls and get rootbound. If repotted, old pieces will fall of the fine developed root system, and thus new granulatum can easily enter the hollow spaces betwen the roots just by pouring the granulatum into the new pot and slightly shaking the granulatum into all left spaces. Also new citrus trees, which need to be repotted can easily set into Seramis: Just take out the plant from the old pot, shake of the old loose potting mix, and set into a 3 times larger pot, which is filled to one third with Seramis granulatum. Place the plant onto the granulatum and fill the pot with the granulatum. Than stick the moisture sensor into the granulatum. Now irrigate with the required amout of water (1/4 of the pot volume) which you have mixed with the fertilizer and thats all.

Because of the good aeration and drainage Citrus does not suffer root damage, also stem end rot is very seldom. Because no free water is

present and enough aeration prevents fungal diseases.

So citrus grows very well in this granulation and root development is more than very good. The surface of the granulatum is seldom susceptible to mold, because the surface dries out very quickly, reducing more evaporation from the deeper granulatum layers.

Also the granulatum holds all nutrients in water soluble compounds, so the roots get nearly optimum fertilisation. If free water and to much fertilizer is avoid, no real root damages will be expectable. Healthy roots result in proper growth and plant development, so Citrus grows very well in Seramis. Also the light good ventilated substratum responds quickly to temperature changes, so can be compared with light sandy soils in citrus ochards, which are prefered for citrus growing.

Seramis for outdoors.

Seramis was developed for indoor culture. So outdoors the system can be quickly out-preformed, because in water-tight pots, heavy rainfall lead to over irrigation, and so to root damage. So indoors water-tight pot are required to give Seramis full performance, and outdoor over irrigation by rain must be avoid. How to combine these two features? No question at all. Common pots have drainage holes in the bottom, so water can drain away. The Seramis granulatum may drop through the drainage holes thus common pots can be used, but the Seramis will not operate at full performance. So a resealable pot is required.

A common plastic pot is used, and just above the bottom a hole of 4,5 mm diameter is drilled. A thread of 6 mm is cut into the hole. A rubber seal ring is placed at a plastic screw of 6 mm thread. The screw will now seal the hole in to pot. The drainage hole can now be opend to let water drain, and sealed, if no drainage is required. For outdoor culture two or more screws are recommended, so heavy rainfall can drain away throught the holes, and if the container is moved indoors, the holes are sealed with the screws. For only indoor culture one screw should be placed, providing a possibility to drain water from the pot if accidently over-irrigated, or if the granulatum should be leached from fertilizer or other salt left-overs.

Large pots receive indoors, mainly in shelters during the winter, the normal Seramis required water amount (1/4 pot volume), and the pot is sealed with the screws. Outdoors the screws are removed, but during dry weather irrigation with common Seramis required amount is necessarry. Slow release fertilizers from Seramis can be incooperated into the granulatum to provide fertilisation over a couple of months. So with those granular fertilizer outdoor fertilisation is not necessary, and irrigation is only necessary if the moisture sensors shows. So with high rainfall less irrigation is need, and only on dry weeks a irrigation should be maintained.

Seramis - the final evaluation

Seramis is more expensive than common potting mixtures. But Seramis is high water conserving, needs less maintainance. Also irrigation and fertilisation of less effort. The sterile, high ventilated and well drained granular substratum is very well developed for plants with tender roots. Also it will not decompose or contain any free water which can lead to root damage. Also no organic components are present in the granulatum itself, so growth of fungal diseases is very decreased.

Seramis is less time consuming in irrigation, fertilisation and repotting. Also the less often irrigation schedules are advantage of Seramis. Backdraws are, that Seramis requieres strict low dosages of fertilizer and stict correct water amounts for irrigation, so irrigation of small containers is often difficult. Next backdraw is that Seramis is inorganic, so organic fertilizers cannot be used.

But if Citrus is grown in the complete system, most citrus trees do more than even well in the growing system. There was no rootstock, which did not grow successfully in Seramis.

So Citrus in Seramis is for many homeowners a very good consideration and worth a try. Also some Nurseries should check, if this granulatum may fit for their demands, because inorganic it will not be a source of diseases, the less irrigation and fertilisation maintainance is also and advantage, as the easy repotting action. But for Nursery use it may be to expensive, but it would be available in big packs of several tousand liters granulatum.

So Citrus for homeowner as homeowner market can successfully planted in Seramis and effortless grown in this substratum.