PNT-Controller

Manual

STEP Systems GmbH
Soil Testing Equipment - Professional Systems

Duisburger Str. 44
Tel: ++49 (0) 911 96 26 05-0
Fax: ++49 (0) 911 96 26 05-9
D-90451 Nürnberg
e-mail: **info@stepsystems.de**
www.**stepsystems.de**

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Declaration of Conformity:
This device complies with the EMC Directives 89/336/EEC, 2004/108/EF, 73/23/EEC and 2004/22/EF, EN60065, EN55022 Class B, EN55024, EN6100-3-2, EN292 and EN 60335.

Legal Obligation for battery disposal: Batteries do not belong in household waste. As consumer, you are legally obliged to return used batteries. You can use your old batteries at public collection points in your community or anywhere else where batteries of this type are sold.

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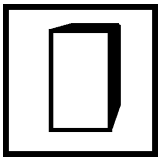
General instructions

Measure in several pots or on different spots in order to receive a representative result.

Measure in moist soil or peat. Recommended time of measurement: about 2 h after irrigation.

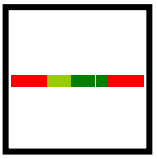
Insert the electrode down to the root depth.

Measurement



Switch on the instrument.
First red LED shines.

Plug in the electrode and stick it in the pot/ in the soil.



Read off the result (shining LED). See the evaluation sheet.

Maintenance

Keep the sensor of the electrode clean.
In case of corrosion, use steel wool for cleaning.

The PNT-Controller has been calibrated carefully. Recalibration is not required.

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The PNT Controller shows 11 LEDs (Light Emitting Diode) of different colours.

1. First red LED shines:
Battery check and absolute „ZERO“-measurement.
No fertilizer at all available to the plant. Check soil moisture.

2. Second red LED shines:
Not enough fertilizer available to the plants.
Check soil moisture. In case of moist soil, strong fertilisation is recommended.

3. Third red LED shines:
Not yet enough fertilizer available to the plants.
Check soil moisture. In case of moist soil, small fertilisation is recommended (according to the plants requirements,
see **Plant Table**).

4.5. Fourth or fifth light green LED shines:
Enough fertilizer available for all plants which require only a small amount of fertilizer (=salt-sensitive plants, e.g. primula,
see **Plant Table**).

6.7.8. Sixth or seventh or eigth dark green LED shines:
Enough fertilizer available for all plants which require even a high amount of fertilizer (e.g, tomatoes, chrysanthemum, etc.)
see **Plant Table**).

9. Ninth red LED shines:
Stop fertilization for the next time. The plants are very well fertilized at present, even too high (for salt sensitive plants).
Watering is recommended.

10. Tenth red LED shines:
Stop fertilization. Irrigation from the top is recommended to wash out the fertilizer salts. Salt damages are to be expected.

11. Eleventh red LED shines:
Caution! Extreme excess of fertilzer!
Change the soil completely. Salt damages, e.g. root burnings, brown/yellow leaves, are likely to be seen at the plants. If a complete soil exchange is not possible, try to wash out the excessive salt concentration with rain water. Check the irrigation water quality. A complete soil analyses in order to determine the origin of the salt excess is highly recommended.

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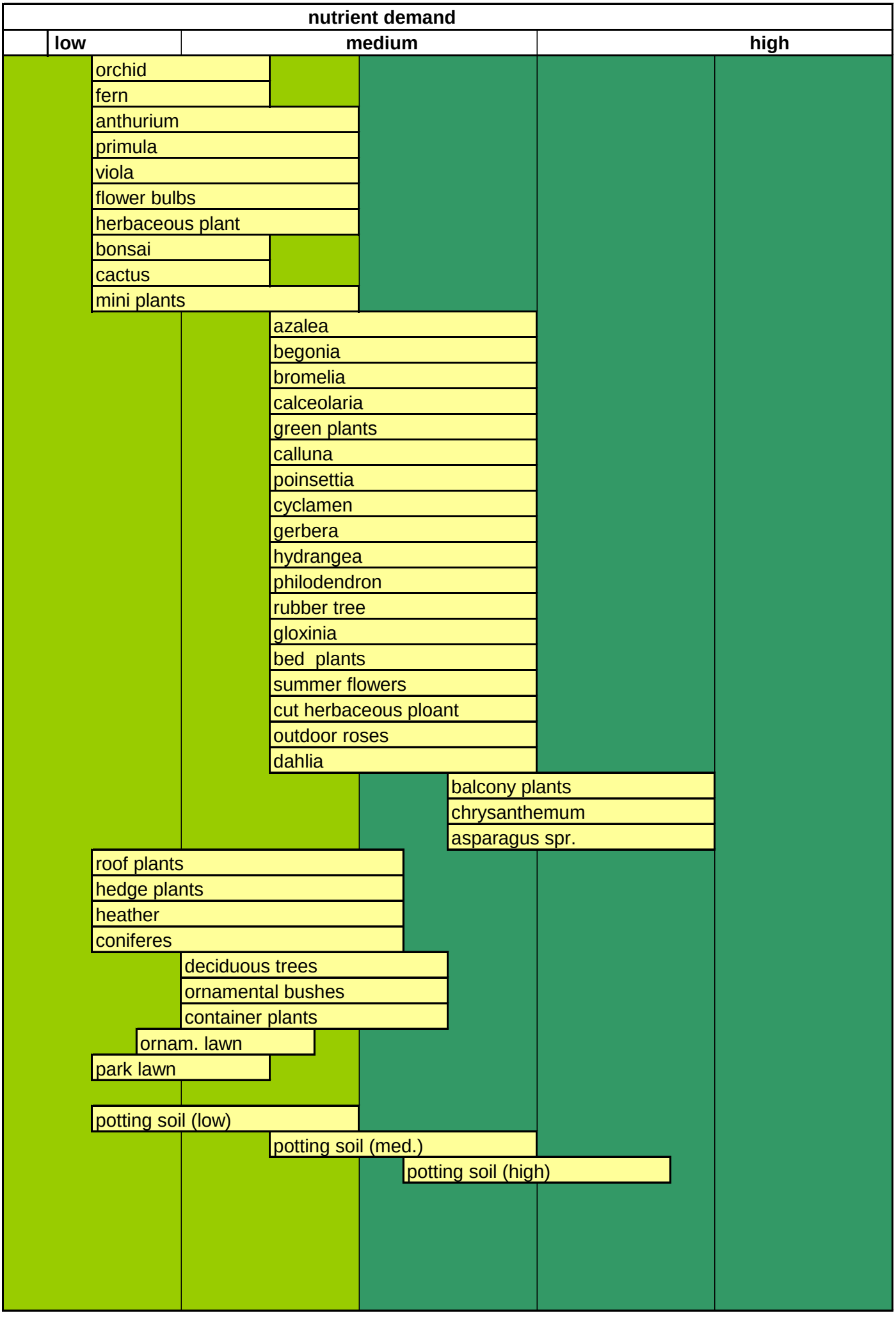
Optimal plant nutrition with the PNT-Controller

According to the nutrient requirements, the different plants are divided up in three categories:

low, medium and high nutrient demand

The categorization is valid for the main growing time and in moist soil. If the indication is too low, a fertilization is recommended. Pot plants, balcony plants, etc. are fertilized with liquid fertilzer; bed plants, outside plants are fertilized with N-K-fertilizer.

nutrient demand		
low	**medium**	**high**
		tomatoes in greenhouses
		cucumbers in greenhouse
		paprika in greenhouse
		cauliflower in greenhouse
	beans in greenhouse	
	radish in greenhouse	
	kohlrabi in greenhouse	
	salad in greenhouse	
parsley in greenhouse		
chives in greenhouse		
spices		
lamb's lettuce		
bush beans		
runner/string bean		
endive		
pea		
carrot		
parsley		
chives		
onion		
asparagus		
	lettuce	
	kohlrabi	
	radish in greenhouse	
	cabbage	
	leek	
	beetroot	
	potato	
	cucumber	
	celeriac	
	tomatoes	
	cauliflower	
	paprika	
strawberry		


nutrient demand
low
medium
high
orchid
fern
anthurium
primula
viola
flower bulbs
herbaceous plant
bonsai
cactus
mini plants
azalea
begonia
bromelia
calceolaria
green plants
calluna
poinsettia
cyclamen
gerbera
hydrangea
philodendron
rubber tree
gloxinia
bed plants
summer flowers
cut herbaceous ploant
outdoor roses
dahlia
balcony plants
chrysanthemum
asparagus spr.
roof plants
hedge plants
heather
coniferes
deciduous trees
ornamental bushes
container plants
ornam. lawn
park lawn
potting soil (low)
potting soil (med.)
potting soil (high)