

Stellenbosch Reuse Pampoen Gids 2005

Weergawe 1.30 (2005 – 12 – 05)
www.pampoen.co.za

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(1.) Inleiding

Ek moes regtig baie vinnig die gids aanmekaar sit. My tyd was effens beperk, maar ek voel die gids is redelik volledig. Vir meer inligting oor die groei van reuse pampoen kan jy na www.pampoen.co.za gaan en na die links (skakels) kyk. Ek het gevoel dat ek baie inligting al versamel het wat en graag wou deel. Daar bestaan ook nie eintlik 'n gids vir Suid-Afrikaanse groeiers nie. Laat weet vir my as julle nog enige vrae het. Besoek www.pampoen.co.za om my in die hande te kry.

Voor jy die gids begin lees, lees heel eerste die 'fertilizer guide' in Appendix A. Dit is die heel belangrikste afdeling in die gids. Daarna probeer om deur die hele gids te lees. Dit is goed om lank vooraf te weet wat in die seisoen gaan gebeur, sodat jy vooruit kan beplan.

Let ook op: Die aannames met die aangeduide datums is dat daar 1 Oktober geplant was (of dat die plant 8 Okt opgekom het). As jy dus vroeër of later geplant het, maak net die nodige aanpassings.

Ek voel dat as jy alles redelik goed kan volg in die gids, jy die 700 pond of 800 pond grens kan breek (dalk 1000 – wie weet?). Maar dit hang ook af van wat se pitte jy vanjaar plant. Ons wag nog vir die eerste Suid-Afrikaner oor 1000 pond. Die huidige Suid-Afrikaanse rekord word gehou deur Charlie Cockrell van Hopefield met 678 pond – opgestel in die 2003/2004 seisoen.

Daar is ook 'n forum by www.pampoen.co.za opgesit. Gebruik dit as julle enige vrae het. Ek gaan ook van tyd tot tyd "postings" daar maak, so laat weet van juiself. Ander groeiers sal ook graag wil hoor van jul vordering. Groete met die groeiseisoen.

(2.) Chronology

Day #	Days after pollination	Section	Date	Event
0			1-Oct	plant
7			8-Oct	Plantjies begin opkom
14			15-Oct	Transplant to patch
33			3-Nov	12 leaves
48			18-Nov	start burying
63			3-Dec	pollinate begin
69	0		9-Dec	pollinate 1062
77	8		17-Dec	pollinate end
78	9		18-Dec	choose start
78	9		18-Dec	begin remove
79	10		19-Dec	build shade
80	11		20-Dec	no amount of water enough
90	21		30-Dec	final choice
91	22		31-Dec	choose end
94	25		3-Jan	124 lbs
95	26		3-Jan	Fast growth starts
109	40		18-Jan	focus pumpkin
110	41		19-Jan	556 lbs
111	42		20-Jan	stem split
125	56		3-Feb	896 lbs
126	57		4-Feb	slower
140	71		18-Feb	very slowly
155			5-Mar	mature
158			8-Mar	harvest

Cronology – explained:

(3.) 18 November

(3.1) Rank wortelstelsel

Begin om die ranke te bedek met grond. Alle leaf-stem interjections het 'n wortel sisteem, so deur jou ranke met grond te bedek help dit dat die wortels vinniger sal ontwikkel. Die wortels help dan ook om die ranke te anker, en verskaf voeding aan die plant.

Die volgende skets stel dit voor:

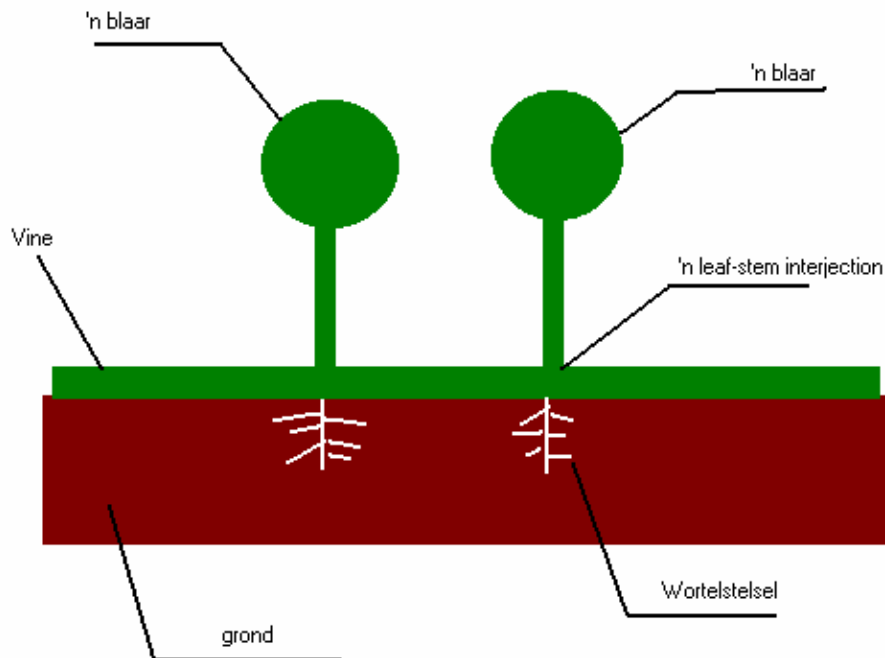


Fig 3.1.1: Illustrasie van die wortelstelsel by elke leaf-stem interjection

Hierdie wortels by die leaf-stem interjection kan nogal groot word, en daar is baie leaf-stem interjections. Dus gaan daar op die ou end orals wortels wees waar die rank gaan. Dit is dus belangrik dat jy die hele area waar daar rank is water en kunsmis gee, nie net by die 'main stem' nie. Sien Fig 4.1.3 vir 'n illustrasie van hoe die leaf-stem injections bedek moet word met grond.

(3.2) Rank snoei vorms en plant grootte

Jy moet die ranke snoei. Daar is verskillende vorms waarin jy kan snoei, maar die mees populêre vorm is die sogenaamde “Christmas tree”. Dit lyk basies so:

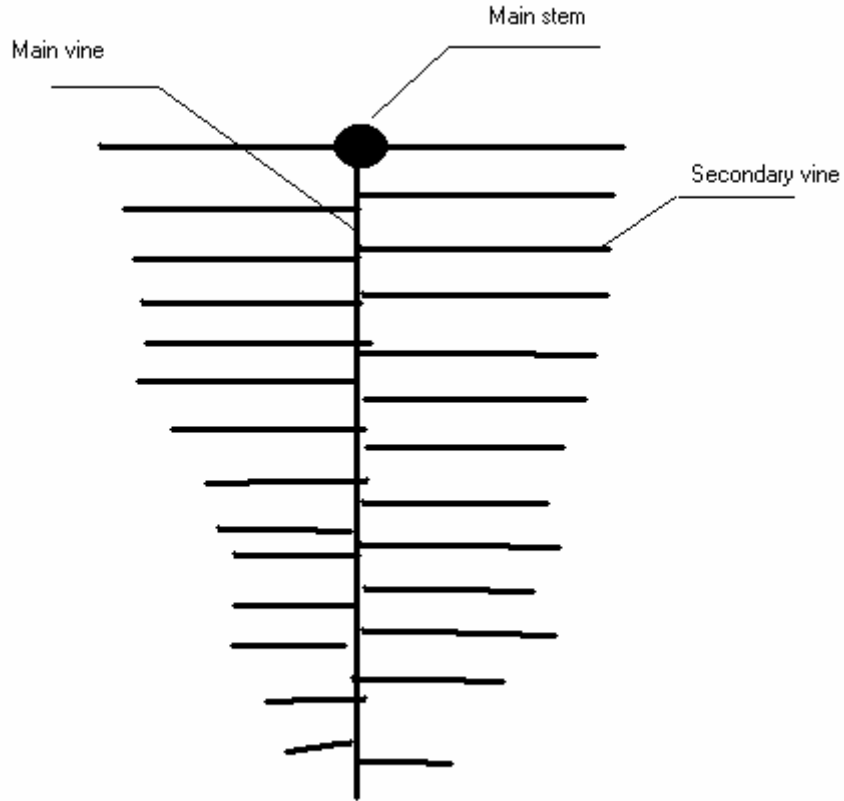


Fig 3.2.1: Die 'Christmas tree' rank vorm



Fig 3.2.2: Die 'Christmas tree' rank vorm



Fig 3.2.3: Die 'Christmas tree' rank vorm

Let wel: Die main stem is waar jy die pit geplant het. Die 'main vine' kom uit die main stem en die 'secondary vines' kom uit die 'main vine'. Daar kom ook 'tertiary vines' uit die secondary vines, maar jy moet hulle almal afsnoei. Elke tweede 'secondary vine' moet ook maar afgesnoei word. Bedek altyd die plek waar jy snoei met grond vir beskerming. Die 'trend' in Amerika is om nie meer sulke groot plante te groei nie. Ons groei pampoen hier, nie pampoenplant nie. Die plante word dus deesdae kleiner gehou. Tevore het hulle plante van 1200-1500 ft² gekweek. Deesdae beperk hulle die plant tot 500-600 ft². [sien conversion table in Appendix E]

Ek beveel aan dat jy jou plant beperk tot 600 ft² (55,7 m²). Sien Fig 3.2.4 hieronder.

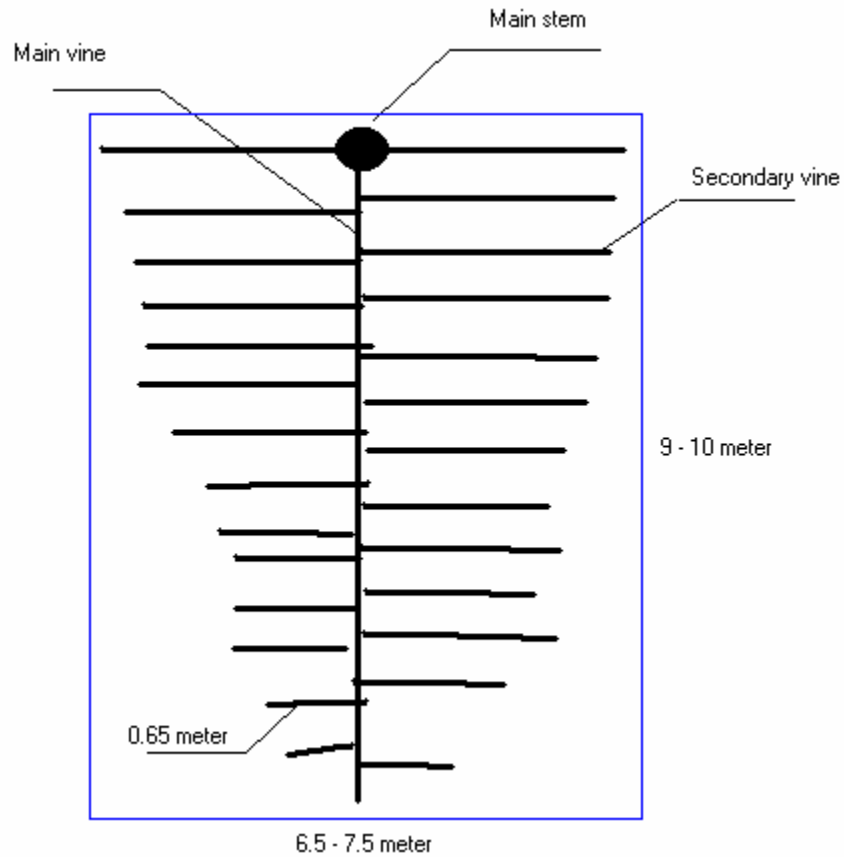


Fig 3.2.4: Die grootte van die plant

Gebruik maar die “Christmas tree” vorm. Meeste van die top groeiers in Amerika groei hul plante so.

Snoei slegs wanneer dit warm is (tussen 11h30-16h00)

Hoe ook jou “pumpkin patch” skoon van onkruid.

Snoei ook elke twee ‘secondary vine’. Deesdae snoei al die groot groeiers in Amerika redelik baie. Die ranke moet nie te dig op mekaar wees nie. Gebruik maar jou eie oordeel hier.

(4.) 3 Desember

(4.1) Bestuwing

Die blomme is nou reg om bestuif te word. Daar is twee verskillende soorte blomme op die pampoenplant. Mannetjies en vroujies blomme. Dit is baie maklik om hulle van mekaar te onderskei. Vroujiesblomme het 'n klein on-ontwikkelde pampoentjie aan die blom. Die mannetjiesblom natuur nie. Daar is ook gewoonlik heelwat meer mannetjies blomme as vroujies blomme.

Daar kan van enige tyd vanaf 3 Des – 17 Des bestuif word, maar doen dit maar so vroeg as moontlik.



Fig 4.1.1: Die mannetjiesblom



Fig 4.1.2: Die vrouwtjesblom



Fig 4.1.3: Hoe die vrouwtjesblom lyk op die dag wat dit oopmaak

Hoe om te bestuif:

Pampoene word gewoonlik met mekaar gekruis sodat die “offspring” beter gene sal hê. Maar as jy nie anders kan nie, is self-pollination ok. (maw gebruik eie pampoene se blomme). Met kruis-bestuiwing moet jy die dag voor die vroukjies blom oopgaan, al reeds die blom geïdentifiseer het. Die vroukjies blom vorm ’n skerm punt en jy kan sien dat dit die volgende oggend sal oop maak. (sien Fig 4.1.2 hierbo) Jy moet dan die volgende oggend net voor sons-opkoms (so 4:50) opstaan om die bestuiwing te doen. Jy moet al vroeg daar wees om die bye vooruit te wees. Anders doen die bye die bestuiwing vir jou, en jy sal nooit verseker weet wat die male pollinator was nie.

Pluk ’n paar mooi mannetjies blomme en gebruik ’n kwas om die stuifmeel op die vroukjiesblom te kry. Ek skut sommer net die stuifmeel af vanaf die mannetjiesblom. Gebruik so 4-6 vars mannetjiesblomme.

Bind dan die vroukjies blom na bestuiwing toe met ’n toutjie sodat geen by daarin kan klim. (sien fig 4.1.5 hieronder) Onthou: Die vroukjies blom maak slegs vir ’n paar ure oop en gaan dan dood. Dit is belangrik dat jy daar is voor die bye.



Fig 4.1.4: Plaas die stuifmeel met ’n kwassie. Andersins kan jy net die stuifmeel probeer afskut op die blom



Fig 4.1.5: Bind die blom toe na bestuiwing om bye uit te hou

Neem aan dat die pampoens dus 9 Desember bestuif is (die ideale tyd).

Die res van die datums maak die aanname dat jou pampoens 9 Desember bestuif is. As jou pampoens vroeër of later bestuif is, maak net die nodige aanpassings met die datums.

(4.2) Gebruik loopplanke

Om kompaksie van die grond naby die wortel te voorkom, gebruik breë loopplanke as jy naby die rank en pampoens kom. Sien Fig 6.1.1 vir 'n illustrasie.

(5.) 10 Des – 29 Des:

(5.1) Hou pampoene met vinnigste groeitempo

Choose start

Na bestuiwing moet die pampoene gemeet word om te bepaal wat se een groei die vinnigste. Slegs die pampoene wat die vinnigste groei word gehou, die res word afgesnoei. Posisie op die rank is egter ook belangrik. Verkieslik moet die pampoene op die 'main vine' wees, maar rekords is al tevore op die 'secondary vine' gegroei. (sien Fig 5.2.2)

Kyk maar wat se pampoene se groei tempo is die vinnigste. As die pampoene omtrent sokkerbal grootte is moet die stadig groeiende pampoene afgehaal word. Bedek maar weereens alles wat jy snoei met grond vir beskerming. Vir die groeiers wat slegs een plant het, beveel ek aan dat hulle twee pampoene per plant hou. Want die pampoene kan soms bars en dan sit jy met geen pampoene nie. Sommige groeiers (soos Joel Holland – een van Amerika se beste groeiers) groei baie van sy plante met twee pampoene aan. Die plante kan maklik twee reuse pampoene aan een plant dra. Kies net die beste twee groeiers.

Een van die beste groeiers in Kanada, 'Al Eaton', gebruik die volgende metode om al vroeg te bepaal wat die klein pampoene se potensiaal gaan wees:

Re: Al Eaton's 10-20-30 day gauge

To: pumpkins@hort.net

Subject: Re: Al Eaton's 10-20-30 day gauge

From: DBHASKARAN@aol.com

Date: Tue, 19 Jul 2005 00:03:01 EDT

Content-type: text/plain; charset="us-ascii"

List-archive: <<http://www.hort.net/lists/pumpkins/>> (Web Archive)

Reply-to: pumpkins@hort.net

Sender: owner-pumpkins@hort.net

Mark,

Now you're into the hard part of growing AGs....culling off the one that would have been 1500 lbs :-). I can share my experience for what little that is probably worth...

I like to set them 10-12 feet down the MV..further is ok....this allows for 3-4 feet on each side of the pumpkin to have its secondaries cut off so there

is not stress on the stem. Once I have decided on the MV pumpkin...I go for it by re-directing the main (and I mean picking up the whole ball of wax after the pumpkin and forming a "V" with the pumpkin. I don't mess too much with the MV BEFORE the pumpkin as that is where the majority of the pipeline is coming from...but you have got to think way out timewise and what will happen when the pumpkin stem is 1-2ft (sometimes more!) off the ground. Or if you don't do the "V" will the pumpkin start to "push" on the MV as it grows. Most people don't realize that the stem or MV will "kink" and really slow down the flow...so the KEY is to keep the "PIPE" open...you'll be surprised with the results...just always be looking for stem stress.

Anyways, good luck!

David Bhaskaran

Rochester, MN

In a message dated 7/18/2005 10:07:46 P.M. Central Standard Time, korney19@verizon.net writes:

Thanks Al & David and bigmpkn for your replies. Today is day 10 and 3 that I

pollinated on 1 plant on 7/8 just seemed smaller than I thought, but they are well over the 10 day number. I taped them vertically, though they are slightly

longer horizontally. Maybe it was just an illusion that they seemed small. I thought I may have been dragging one down because so many are pollinated on the same plant (7 or 8.) One on a secondary appeared larger than the other 10-dayers but it taped identical to another on a different 2ndary. The one on the main was slightly larger, but only by an inch or two.

This year, thanks to Vince's suggestion, I'm putting all my eggs in 1 basket, (one plant) I really hate to do that but I hope it pays off & I avoid any disasters.

How long should I wait to pick the best 1 or 2 and cut the others loose?

Thanks.

Mark
(in Buffalo)

-----Original Message-----

From: owner-pumpkins@hort.net [mailto:owner-pumpkins@hort.net] On Behalf Of The Eatons

Sent: Monday, July 18, 2005 12:58 PM

To: pumpkins@hort.net

Subject: RE: Al Eaton's 10-20-30 day gauge

Hello Mark K.--the figures I have,just from my own AGs over the last 4-5 years from 1000+ AGs are as follows:

day 10---25"

day 20---70"

day 30--110"

These are averages and since it is only the circumference,the shape of the little AG (long and low vs short and high)should be mentally factored in.

It is only an indicator for interest sake but I think all the top AGs each year need to start at about this rate to show they have top potential.

Dus, as jou pampoens omtrek teen dag 10 na pollinasie 25 inches is (25 inches = 63 cm), het dit 'n baie goeie potensiaal. As die pampoens dan teen dag 20 inches (= 178cm) is en teen dag 30 110 inches (= 279cm) is dan is jou pampoens oppad na oor 1000 pond. Sommige groeiers soek selfs groter omtreкке vir dag 10, 20 en 30. Maar gebruik Al Eaton se gauge om te bepaal of jou pampoens 1000 pond potensiaal het.

(5.2) Posisie van pampoens op rank

Probeer dus 'n pampoens op main vine kry tussen 3-5 meter vanaf die main stem, soos die skets hieronder (fig 5.2.2) aandui.

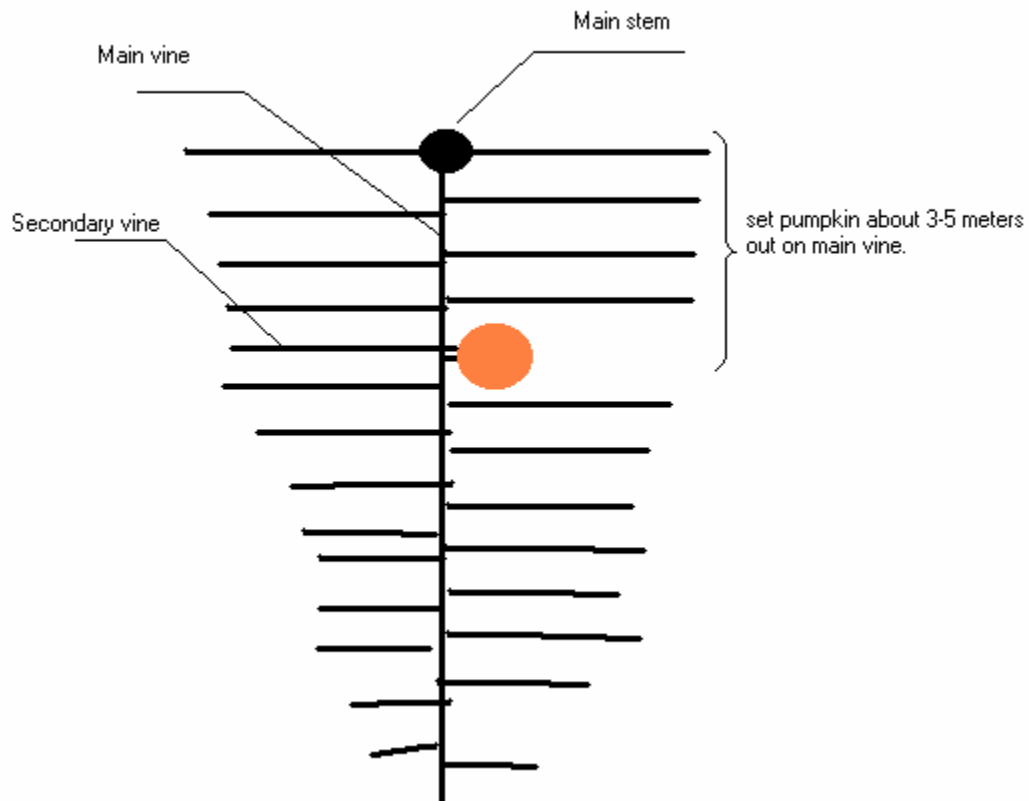


Fig 5.2.1: Waar die pampoen verkieslik op die rank moet lê

(6.) 30 Des:

(6.1) Maak finale keuse

Teen die tyd moet jou finale keuse gemaak word oor wat se pampoen jy gaan hou op die plant. Al die res word afgesny en net een (of twee as jy wil) pampoen word gehou. So ek tevore gesê het: As jy wil veilig speel, los twee pampoene per plant. Die pampoene kan bars. Dit is moontlik om twee rekord breker pampoene aan een plant te groei.

Nou het jy een pampoen oor. Dit is belangrik dat jy nou die pampoen se bodem beskerm. Dit kan nogal "soggy" word onder die pampoen met al daai water wat jy gaan spuit. Sit dus al vroeg wit sand (soos bousand of riviersand) onder die pampoen. Sien figuur 6.1.1 hieronder.



Fig 6.1.1: Sit sand onder pampoen sodat die onderkant nie “soggy” word nie



Fig 6.1.2: Sit sand onder pampoen sodat die onderkant nie “soggy” word nie

(6.2) Skaduwee vir pampoen

Bou 'n skaduwee vir jou pampoen. Direkte sonkontak kan die dop uitdroog en hard maak wat groei kan vertraag, so bou 'n skaduwee dakkie wat heeldag die pampoen teen direkte sonlig sal beskerm.



Fig 6.2.1: Skaduwee vir jou pampoen



Fig 6.2.2: Skaduwee vir jou pampoen

Water nou baie belangrik. Onthou: die grond moet nooit, maar nooit droog wees nie. Sorg maar dat jy gereeld water gee, vanaf jy plant tot die einde van die seisoen. Teen 30 Des raak water veral belangrik.

(7.) 31 Des:

(7.1) Die V-shape

Die pampoens se rank moet eintlik in 'n V-shape ge-“train” word om enige rank spanning by die pampoens te verhoed:

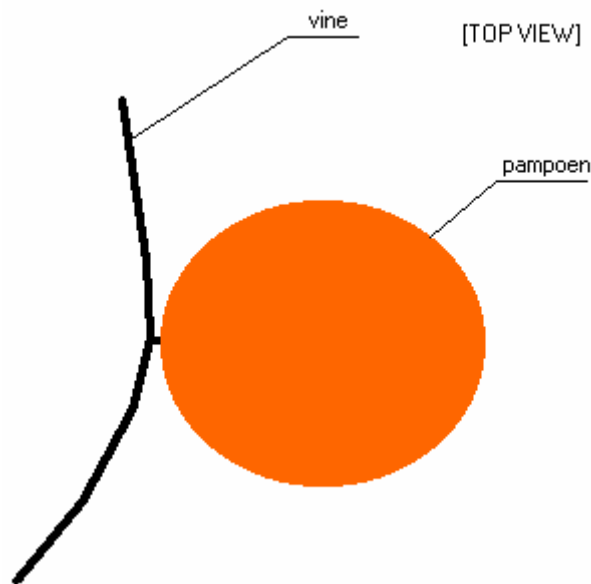


Fig 7.1.1: Die V-Shape wat die rank moet hê

Dit verhoed dat die wand van die pampoens teen die rank druk en sodoende homself van die rank afskeur. So probeer om die rank in so 'n vorm te groei. Onthou net: As jy die rank beweeg, beweeg dit slegs bietjie per dag, en in die middel van die dag as dit baie warm is. Dit voorkom stres op die rank.

Let wel: Die skets (fig 7.1.1) is dalk effens oordryf, maar dit is net om die idee te gee dat die rank op so 'n manier moet lê dat die pampoens nie teen die rank sal druk nie.

(7.2) Wortels van die rank naby pampoer

Die wortels van die rank naby die pampoer moet ook afgesny word. Soos die pampoer groei, gaan die rank van die grond wil oplig. As jy nie die wortels naby die rank afsny nie, kan die pampoer homself weereens afskeur. Sien fig 7.2.1 hieronder om te sien hoe die pampoer die rank laat oplig.



Fig 7.2.1: Illustrasie van hoe die rank gaan oplig

en wat gebeur as jy nie die wortels van die rank naby die rank nie:



Fig 7.2.2: Wat gebeur as jy nie die wortels van die rank naby die pampoene afsny nie

(8) 3 Jan

(8.1) Snelle groei begin

Nou begin die ongelooflike groei tempo van die pampoene. Onthou, die pampoene het nou slegs tussen 3 Januarie en 3 Februarie om meeste van sy gewig aan te sit. Daarom moet die pampoene teen 'n sekere tempo groei. Meet die omtrek daaglik (teen dieselfde tyd elke dag natuurlik) om sy daaglikse groei in pond te bepaal. Gebruik Stellplug se tabelle (Appendix C) om die gewig te benader. Hier is 'n voorgestelde tempo (pond per dag) as jy vir oor 1000 pond mik:

Periode	Pond per dag groei
3 Jan – 21 Jan	25-28
22 Jan – 3 Feb	25

Let wel: Die is nogal baie vinnige groei. As jy vind dat jou daaglikse groei minder is as hierbo, moet jy dalk meer water en bietjie meer kunsmis toedien. Maar veral meer water.

Hier is wat Steve Daletas ('n voormalige wereld record houer) te se het oor kunsmis en water:

Most growers have a secret compost or fertilizer they swear by to produce these gargantuan pumpkins, but Steve assures us this isn't the case with him. The key to growing a prize winning pumpkin is "just good soil and plenty of water." He admitted to the crowd of reporters after the competition that he rarely fertilizes but he'll spend all day from sunrise to sunset out in the patch weeding and pollinating.

Maak ook seker dat jy aanhou om kalsium te gebruik (sien Appendix A) om skeure te voorkom. As die pampoene so vinnig groei kan skeure en barse maklik vorm, so pasop maar. As jy sien die groei was te vinnig en 'n krakie begin vorm, moet jy dalk effens minder water gee per dag.

Ek gebruik over-head sprayers om water toe te dien. Vir die periode 3 Jan – 21 Jan kan jy maar 4 keer per dag water gee.

Groei kurwes

Nadat die pampoene bestuif is moet die groei elke dag gemeet word. Dit moet gedoen word sodat jy die daaglikse tempo van groei kan plot. As jy mik vir 'n 900-1000 pond pampoene, moet jy 'n daaglikse groei van 25-28 pond per dag he tussen 3 Januarie – 21 Januarie (as jy 1 Okt geplant het). As jou groei minder is, moet jy meer gereeld water toedien. Dit kan ook dan help om effens meer kunsmis te gebruik, maar water is eintlik die heel belangrikste. En baie daarvan.

(8.2) Misterters

Al die grootste pampoene word in Amerika se noordelike state gegroei. Die rede is omdat die soort pampoene eintlik effense koeler weer verkies. Wat gebeur as dit te warm is: die blare verlep – kan dan nie fotosenteer nie en die pampoene kan dan nie groei nie. Van die groeiers in warm Kalifornië het nogal 'n slim plan gemaak. Hulle gebruik misterters om hul plante mee af te koel. Misterters is soos sproeiers, maar het 'n verskriklike fyn sproei. Mikroskopiese druppeltjies. In Suid-Afrika kan jy misterters koop by Agriplus in Stikland. Hul telefoon nommer is 021 917 7177. Die misterters is nie duur nie – kos so R2.50 per terts. Dit is my mening, dat as jy 'n +1000 pond pampoene hier in warm Suid-Afrika wil groei, dat jy van misterters moet gebruik maak. Elk het te veel al in vorige jare gesien hoe die blare verlep as dit so warm raak. Dit beïnvloed die groeitempo van die pampoene nogal baie. Sien Appendix C en D vir meer informasie, en 'n gids vir hoe om 'n misting stelsel te bou.

Appendix A – Fertilizer Guide

Sien die aangehegde ‘fertilizer program’ van Joel Holland in Amerika. Hy het dieselfde program gebruik om sy 1229 pond pampoen te groei.

HOLLAND'S LAND O' GIANTS FERTILIZER PROGRAM	
<u>PLEASE NOTE: Do not exceed recommended application rates for soluble fertilizers. More frequent-lighter applications are more effective than less frequent heavy doses. When pumpkins are in their heavy growth phase and later in the season, you should consider cutting back on fertilizers and water if pumpkins are on a good growth curve, especially if sag lines or stem splits are presented.</u>	
	<u>Initial Preparation and Planting</u>
Previous Autumn (preferred) Early Spring	Add organic matter, compost, manure and/or plant cover crop. Make needed PH adjustments. Add nutrients in the Spring based on results of your soil test.
Planting Seeds	Soak seeds in a solution of 1/2 teaspoon Soluble Seaweed Powder in 1-quart of warm water. Mix 3.5 ounces of Bio-Endo Plus in each 1-cubic foot of seed starting mix.
Planting	Mix 3.5 ounces of Bio-Grow Endo Plus into each 1 cubic ft. of soil excavated for planting holes. Water the seedlings in with Soluble Seaweed/Fish Powder combo in warm water. Mix each at half the normal rate. The instructions for initial mixing are on the labels.
	<u>Month-By-Month Suggestions</u>
4 Oct – 3 Nov	Water the plants at the base as needed, alternating Soluble Seaweed, Calcium, and Soluble Fish with plain water. Example: Soluble Seaweed-plain warm water-Calcium solution-plain warm water-Soluble Fish-plain warm water. When plants reach the 5 true leaf stage do a Combination of foliar applications and feeding directly on the soil in an area 2 to 3 times larger than the plant.

4 Nov – 3 Dec	Mondays (or 1 time a week) Soluble Seaweed Foliar Spray Wednesdays (or 1 time a week) Calcium Solution Foliar Spray Fridays (or 1 time a week) Soluble Fish Foliar Spray
4 Dec – 3 Jan	The same as November-but *consider cutting back on fertilizers and water if the pumpkins are on a high-growth curve or if sag-lines or stem-splits become evident.
4 Jan – 3 Feb	Continue the same with Seaweed and Calcium. Every 10-14 days. Use a Soluble Fish foliar spray. * Use the same considerations as in December.
4 Feb – 5 Mar	Same applications of Seaweed and Calcium. 2 times a month apply Soluble Fish foliar spray. * Use same considerations as previous months.
5 Mar - harvest	Use the same Seaweed and Calcium Applications. Delete Fish Applications.

Maak in die oggende nat. Dien ook jou kunsmis toe in die oggend. Moet nie in die aand nat maak, of net voor sonsondergangs. Die blare moet teen aand droog wees. Nat blare in die aand kan sekere plant siektes soos veral donsskimmel (powdery mildew) veroorsaak. Terloops, die plante is baie geneig om donsskimmel later te ontwikkel. Dit is dus dalk 'n goeie idee om so nou en dan 'n fungicide te spuit.

Waarmee om die kunsmis toe te dien:

Ek gebruik 'n venture nozzle. Dit kan verkry word van Superplants (eintlik nou 'n ander naam) in Somerset Wes. Hule tel: 021 852 4992

Die venturi koppel aan jou tuinslang en het 'n suction pyptjie waar die konsentraat mee opgesuig kan word. Die meng verhouding is gewoonlik so 1:9 met water.

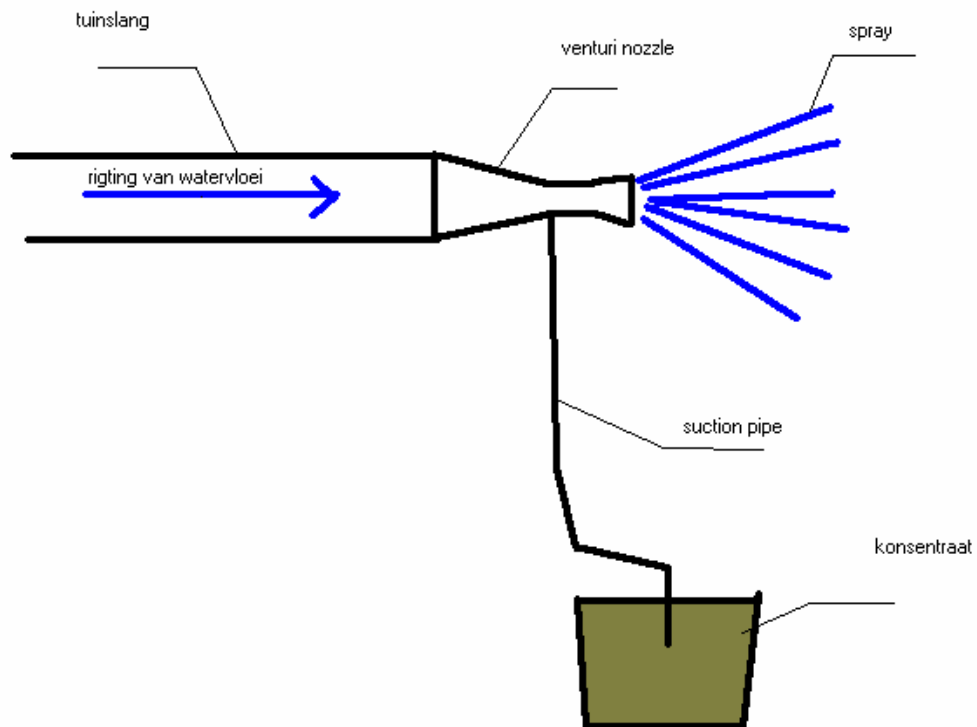


Fig A1: Hoe die venture nozzle werk

Daar is ook ander manier van fertigation, bv injection ens. maar dit raak bietjie duur. Die ander alternatief is om dit met jou gieter te gee, maar dit kan vir ewig neem om die hele patch so te dek.

Sommige groeiers in Amerika gebruik “soaker house” en drippers om die grond konstant klam te hou. ‘n Soaker hose is ‘n pyp met baie klein gaatjies in oor sy hele oppervlak (soos ‘n baie fyn sif). Die water week dan daardeur. Die pype word gewoonlik gekoppel aan ‘n self-gemaakte watertoring soos Fig hieronder aantoon. Die dromme op die toring kan dan ook met die geskikte hoeveelheid kunsmis toegedien word vir fertigation.



Fig A2: Soaker hoses en die watertoring

Sommige groeiers verkies om die metode van soaker hoses en drippers te gebruik om die blare droog te hou. (Nat blare, veral as dit nat is in die aan, kan siektes en swamme – soos donsskimmel – veroorsaak). Maar ander top groeiers in Amerika gebruik over-head sprayers soos ek. Ek verkies die metode van over-head sprayers. Dit is baie minder moeite, en jy kan dit makliker beheer.

Waar om die kunmis in die hande te kry op Stellenbosch:

Datum	Plek		Tel	Produk	Soort	liter	Prys (vat ingesluit)	per liter
24-Oct-05	Eikestad Tuinsentrum	Stellenbosch	021 883 3226	Seagro	Fish emulsion	1	44.57	44.57
3-Nov-05	WPK	Stellenbosch	021 887 2834	Seagro	Fish emulsion	5	139.50	27.90
29-Nov-05	Ocean Agriculture	Wellington	021 875 5024	Seagro	Fish emulsion	25	387.60	15.50
24-Oct-05	Eikstad Tuinsentrum	Stellenbosch	021 883 3226	Kelpak	Seaweed	0.5	26.50	53.00
29-Nov-05	Wenkem	Stellenbosch	021 865 2417	Kelpak	Seaweed	25	786.03	31.44
29-Nov-05	Wenkem	Stellenbosch	021 865 2417	Calcharge	Calcium solution	20	319.20	15.96
29-Nov-05	Wenkem	Stellenbosch	021 865 2417	*Seaboost	80% Fish - 20%Seaweed	25	652.38	26.10

* Seaboost: Ek het self nog nooit die produk gebruik nie. Dit is 'n mengsel van 80% Fish emulsion en 20% Kelp (Seaweed). Ek bly maar eerder met die aparte seaweed en fish emulsion produkte.

1. Seagro:

Ek gebruik seagro fish emulsion. Dit is 'n baie goeie produk en beskikbaar in 0.5-25 liter hoeveelhede. In Amerika is Neptunes harvest fish emulsion (<http://www.neptunesharvest.com/>) nogal populêr. Van die groeiers kry besondere resultate daarvan.

Hier is wat van die Amerikaanse groeiers te sê gehad het oor Neptune fish emulsion:

"I have grown 'Giant Pumpkins' for 15 years. I first used Neptune's Harvest in 2001, and until then my pumpkins were around 500-600 lbs. In 2001, my best pumpkin weighed 890.2 and in 2002, I grew the new World Record of 1337.6 lbs."

Charles Houghton, Sr.
New Boston, NH

"With the help of Neptune's Harvest products, I grew an 1177 lb. Pumpkin for 2002. I was also the first grower in New England to achieve growing 5 pumpkins in the same year, all weighing over 800 lbs. There is no doubt that my growing successes are attributed to the use of Neptune's Harvest products"

Jim Kuhn

Goffstown, NH

"Prior to 2001 I hadn't used Neptune's Harvest and my pumpkins were in the 500 lb. range. In 2001 I grew two pumpkins on one plant that weighed 1061 lbs., and 1131 lbs. In 2002 I grew one at 1186.4 lbs. Thanks for a great product!!!"

Bruce Whittier Henniker, NH

Soos jy kan sien is dit duidelik dat Neptune harvest 'n rol gespeel het in die groeiers se goeie resultate. Deesdae gebruik alle groeiers in Amerika Neptune of 'n ander soort Fish Emulsion. In Suid-Afrika is daar ook 'n paar verskillende soorte Fish Emulsion beskikbaar, maar Seagro is by verre die mees populêr. Ek beveel dit ten sterkste aan dat Seagro moet gebruik word soos aangedui in Joel Holland se fertilizer program hierbo.

Let wel: Die 25 liter hoeveelhede van Seagro is slegs van Ocean Agriculture in Wellington verkrygbaar. Ek het vir WPK-Stellenbosch gekontak, maar hulle kan dit net tot 5 liter kry. Dit gaan jou baie goedkoper uitwerk om die 25 liter te koop, en dit sal vir jou die hele seisoen hou.

2. Seaweed:

Dan is die seaweed extract uiters belangrik. Ons plaaslike produk is Kelp/Kelpak. Dit word gebruik vir die 'plant groeie stimulant' (auxins en cytokinins) wat dit bevat. Dit is net bietjie duur. As jy naby die see woon waar daar bamboes is kan jy eintlik jou eie maak. Kelp word so gemaak: Hulle oes bamboes (*Euclonia Maxima*) en maal dit dan in fyn stukkie. Die fyn (regtig fyn) stukkie word dan in 'n pers gesit sodat die stimulant (wat in die selle sit) vrygestel kan word. Hulle noem dit "cell burst technology", en het ook sommer die proses gepatenteer. Die stimulant is veral goed vir wortelontwikkeling. Sommige aartappel en wingerd boere kry 'n 30% groter oes met behulp van die produk.

Die enigste probleem met Kelpak is dat dit nie baie lank hou nie. Die konsentraat wat verkoop word is nie baie sterk nie, en jy moet dit in 'n verhouding van 1:40 meng.

Ek het uitgevind dat daar in nuwe produk van Amerika beskikbaar is. Dit is glo 'n wonder-produk en het al reeds baie goeie resultate vir talle boere gelewer. (30-40% groter oes). Dit is hoogs gekonsentreerd en word gemeng in 'n verhouding van 1:500. Dieselfde hoeveelheid hiervan behoort jou dus 12 keer langer as Kelp te hou. Die produk (seaweed solution) is verkrygbaar van Francis Yateman (hy is ook hier op Stellenbosch). Jy kan vir Francis kontak by 082 808 8183. Ek voel dat so 5 liter per plant genoeg behoort te wees vir die hele seisoen. Die produk kos so R40/liter.

3. Kalsium:

Kalsium is ook baie belangrik om toe te dien. Gebruik 'n 'calcium chelate solution'. Wenkem (sien tabel hierbo) verkoop dit. Sy naam is 'Calcharge'. Kalsium maak dat die pampoene 'n dikker wand sal he, dus swaarder. Dit help ook om skeure en barse te voorkom. Skeure en barse kom veral baie voor met die groot pampoene, aangesien hulle so vinnig groei, en die toediening van kalsium word sterk aanbeveel. Dit sal 'n groot verskil maak in die gewig wat die pampoene sal bereik. Kalsium kan ook op die pampoene gesprei word en sal veral help om skeure en krake aan die blomkant van die pampoene te voorkom. (skeure is nogal geneig om by die blomkant van die pampoene te vorm)



Fig A3: 'n Pampoene met 'n dik wand – kalsium kan help hiervoor

Hier is wat Andrew Papez (ook een van Amerika se top groeiers) te se het oor kalsium:

And spraying calcium on the leaves is pointless because calcium can only travel one way in the plant system and that is from the roots to the fruit, so only spraying the fruit it goes directly into the wall structure.

So spuit dus die kalsium by die wortels en op die pampoene wanneer jy kalsium oplossing toedien.

‘n Bietjie meer oor Chemiese kunsmisse:

As jy op ‘n “budget” is kan jy gebruik maak van chemiese kunsmis. Ek het my 305kg pampoen in 2003 gekweek deur net van water-oplosbare chemiese kunsmis gebruik te maak, maar beveel dit nie aan nie. Daar is verskeidenheid chemiese water-oplosbare kunsmisse verkrygbaar, bv Supafeed, Multifeed ens. ‘n 25kg sak kos omtrent R270 by UAP-Stellenbosch, en omtrent 2-3kg daarvan sal vir jou die hele seisoen hou. As jy dus op ‘n budget is en al daai Seagro, Seaweed en Calcium solution nie kan bekostig nie, koop saam met 8 of meer ander groeiers ‘n 25kg sak Multifeed by UAP-Stellenbosch (hul tel. nr. is in die telefoonboek – probeer 021 883 3728). By vrugontwikkeling kan jy dan oorskuif na Supafeed (ryker aan Kalium). Maar as jy ‘n ernstige groeir is, bly by Joel Holland se fertilizer program, en kry vir jou Seagro, Seaweed en Calcium Solution.

‘n 25kg sak Multifeed sal ‘n baie, baie lang tyd hou (1 sak is oorgenoeg vir 10 groeiers vir die hele seisoen). Dien dit toe saam met die water as jy jou plante nat maak. Gebruik ‘n venturi of ‘n gieter (maar gieter sal bietjie lank neem later in die seisoen – wanneer jy 100de liter water ‘n dag gaan gee). Kan Multifeed toedien 1 of 2 keer per week – dalk meer as jy voel dit is nodig.

Appendix B – Stellpflug se weight estimation tabelle

Let wel: gebruik maar die ‘circumference method’ (table 2). Veral as die pampoen nog klein is. Die ‘over the top’ metode kan later in die seisoen gebruik word om ‘n beter benadering van die gewig te kry. So hou ook by die ‘circumference method’ as jy die daaglikse groei (gains) wil bepaal.

Estimating Weight of Giant Pumpkins and Squash

January 2005

The last update was dated January 2003 based on 800 measurements from 2001 and 2002. I compared data for 1203 fruit grown in 2003 and 2004 with the 2001 and 2002 data. Fruit grown the last 2 years are heavier for the same size by approximately 3%. Therefore the equations used for the tables dated January 2005 are primarily based on 1203 fruit grown in 2003 and 2004. Most of the data was provided from the **AGGC** file by Mike Nepereny. The tables provide estimates for fruit down to 41 inch Circumference (approx. 30 pounds) and 91 inches Over-the-Top (approx. 21 pounds).

David Martin from Little Britain, Ontario used Multiple Regression Analysis to obtain equations that best fit the data I provided. He prepared the Weight Tables from those equations.

The OVER-THE-TOP method (TABLE 1) provides the **BEST** estimates but only about 76% will be within plus or minus 10%. This requires adding Circumference to the two Over-the-Top measurements taken from ground-to-ground from side-to-side and end-to-end.

TABLE 2 uses only the CIRCUMFERENCE measurement. It **DOES NOT** provide good estimates for unusually high, flat, long or short fruit. About 54% of the estimates will be within plus or minus 10%. It is useful to estimate day-to-day increases.

The Circumference measurement should be the **LARGEST** circumference taken **approximately** parallel to the ground. At weigh-offs I have found some growers are not measuring the largest Circumference which contributes to the variability. The OVER-TOP measurements from ground-to-ground in both directions must be over the **highest** point of the fruit. These must be taken straight down from the edges of the fruit.

EXAMPLE: Circumference = 175 inches (Table 2 estimate = 1185 pounds)
 Side-to-side = 103 inches
 End-to-end = 100 inches
 Total = 378 inches (Table 1 estimate = 1130 pounds)
 Actual weight was 1121 pounds.

Due to considerable variability in the “wall thickness” from fruit-to-fruit, neither method provides very reliable estimates but at present we don’t have a better method. Here are the percents of your estimates that you can expect to be within the accuracy ranges shown (based on fruit grown in 2003 and 2004):

<u>Accuracy range</u>	<u>Table 1 (O.T.)</u>	<u>Table 2 (C)</u>
± 5 %	48.5 %	30.2%
± 5.01 to ± 10%	27.3%	24.0%
± 10.01 % to ± 15 %	16.3%	19.6%
Over ± 15.01%	7.9%	26.2%

NEW Tables compared to January 2003 Tables:

The new tables should provide better estimates as AVERAGE fruit weight for the same measurement increased approximately 3% compared to 2001 and 2002 weights. The Circumference table should be much better at the higher weights as the previous table over-estimated above approximately 170 inch Circumference.

I will provide David Martin’s equations (4 terms) to anyone who wants to use them in a computer program. Write me at 1925 Middle Road, Rush, NY 14543-9732.

I have provided Tables to estimate weights since 1988. They were updated every 2 to 3 years. This is my LAST update. For the last 3 updates I thank David Martin for using the data I provided to obtain the equations and preparing the Tables. Thank you to all the growers who provided me with measurements since 1987 and to Mike Nepereny for providing data from his AGGC file the last 4 years.

NOTE: Several people have attempted to obtain Weight Estimating equations using the RAW data available. All, that I know of, obtained equations that over-estimated below approximately 750 pounds and under-estimated above that due to a BIAS in the data. If anyone is interested, I will explain how I worked around the bias.

Leonard B. Stellpflug

Table 1: Over-the-Top Inches vs. Estimated Weight																					
Inches	Lbs.	Inches	Lbs.	Inches	Lbs.	Inches	Lbs.	Inches	Lbs.	Inches	Lbs.	Inches	Lbs.	Inches	Lbs.	Inches	Lbs.	Inches	Lbs.	Inches	Lbs.
91	22.6	121	46.6	151	83	181	136	211	208	241	303	271	425	301	577	331	763	361	986	391	1249
92	23.2	122	47.6	152	85	182	138	212	211	242	307	272	430	302	583	332	770	362	994	392	1259
93	23.8	123	48.6	153	86	183	140	213	214	243	310	273	434	303	588	333	777	363	1002	393	1269
94	24.5	124	49.6	154	88	184	142	214	216	244	314	274	439	304	594	334	783	364	1010	394	1278
95	25.2	125	50.7	155	89	185	144	215	219	245	318	275	444	305	600	335	790	365	1019	395	1288
96	25.8	126	51.7	156	91	186	146	216	222	246	322	276	448	306	606	336	797	366	1027	396	1298
97	26.5	127	52.8	157	92	187	149	217	225	247	325	277	453	307	611	337	804	367	1035	397	1307
98	27.2	128	53.9	158	94	188	151	218	228	248	329	278	458	308	617	338	811	368	1044	398	1317
99	27.9	129	55.0	159	95	189	153	219	231	249	333	279	463	309	623	339	819	369	1052	399	1327
100	28.7	130	56.1	160	97	190	155	220	234	250	337	280	467	310	629	340	826	370	1060	400	1337
101	29.4	131	57.2	161	99	191	157	221	237	251	341	281	472	311	635	341	833	371	1069	401	1347
102	30.1	132	58.3	162	100	192	160	222	240	252	345	282	477	312	641	342	840	372	1078	402	1357
103	30.9	133	59.5	163	102	193	162	223	243	253	349	283	482	313	647	343	847	373	1086	403	1367
104	31.7	134	60.7	164	104	194	164	224	246	254	353	284	487	314	653	344	855	374	1095	404	1377
105	32.4	135	61.9	165	105	195	167	225	249	255	357	285	492	315	659	345	862	375	1104	405	1387
106	33.2	136	63.1	166	107	196	169	226	252	256	361	286	497	316	666	346	869	376	1112	406	1398
107	34.0	137	64.3	167	109	197	172	227	256	257	365	287	502	317	672	347	877	377	1121	407	1408
108	34.8	138	65.5	168	111	198	174	228	259	258	369	288	507	318	678	348	884	378	1130	408	1418
109	35.7	139	66.8	169	113	199	176	229	262	259	373	289	512	319	684	349	892	379	1139	409	1429
110	36.5	140	68.1	170	114	200	179	230	265	260	377	290	518	320	691	350	900	380	1148	410	1439
111	37.4	141	69.3	171	116	201	181	231	269	261	381	291	523	321	697	351	907	381	1157	411	1450
112	38.2	142	70.6	172	118	202	184	232	272	262	386	292	528	322	703	352	915	382	1166	412	1460
113	39.1	143	72.0	173	120	203	187	233	275	263	390	293	533	323	710	353	923	383	1175	413	1471
114	40.0	144	73.3	174	122	204	189	234	279	264	394	294	539	324	716	354	930	384	1184	414	1481
115	40.9	145	74.7	175	124	205	192	235	282	265	398	295	544	325	723	355	938	385	1193	415	1492
116	41.8	146	76.0	176	126	206	194	236	286	266	403	296	550	326	729	356	946	386	1202	416	1503
117	42.7	147	77.4	177	128	207	197	237	289	267	407	297	555	327	736	357	954	387	1212	417	1514
118	43.7	148	78.8	178	130	208	200	238	293	268	412	298	560	328	743	358	962	388	1221	418	1524
119	44.6	149	80.2	179	132	209	202	239	296	269	416	299	566	329	749	359	970	389	1230	419	1535
120	45.6	150	81.68	180	134	210	205	240	300	270	421	300	572	330	756	360	978	390	1240	420	1546

Table 2: Circumference vs. Estimated Weight															
Inches	Lbs.	Inches	Lbs.	Inches	Lbs.	Inches	Lbs.	Inches	Lbs.	Inches	Lbs.	Inches	Lbs.	Inches	Lbs.
41	29.7	61	78.9	81	160	101	280	121	448	141	669	161	948	181	1300
42	31.5	62	82.1	82	165	102	288	122	458	142	681	162	963	182	1319
43	33.4	63	85.5	83	170	103	295	123	468	143	694	163	979	183	1339
44	35.3	64	88.8	84	175	104	302	124	478	144	707	164	995	184	1360
45	37.3	65	92.3	85	181	105	310	125	489	145	719	165	1012	185	1380
46	39.4	66	95.9	86	186	106	318	126	499	146	732	166	1028	186	1401
47	41.6	67	99.5	87	192	107	325	127	509	147	746	167	1045	187	1422
48	43.8	68	103.3	88	197	108	333	128	520	148	759	168	1062	188	1443
49	46.0	69	107.1	89	203	109	341	129	531	149	772	169	1079	189	1464
50	48.4	70	111.0	90	209	110	349	130	541	150	786	170	1096	190	1486
51	50.8	71	115.0	91	215	111	358	131	552	151	800	171	1114	191	1508
52	53.3	72	119.0	92	221	112	366	132	563	152	814	172	1131	192	1530
53	55.8	73	123.2	93	227	113	375	133	575	153	828	173	1149	193	1552
54	58.4	74	127.5	94	233	114	383	134	586	154	842	174	1167	194	1575
55	61.1	75	131.8	95	240	115	392	135	597	155	857	175	1185	195	1597
56	63.9	76	136.3	96	246	116	401	136	609	156	872	176	1204	196	1621
57	66.8	77	140.8	97	253	117	410	137	621	157	886	177	1223	197	1644
58	69.7	78	145.4	98	259	118	419	138	632	158	901	178	1242	198	1667
59	72.7	79	150.2	99	266	119	429	139	644	159	917	179	1261	199	1691
60	75.8	80	155.0	100	273	120	438	140	657	160	932	180	1280	200	1715

2005
Tables prepared
by
DAVID MARTIN

from equations
obtained primarily from 2003 and
2004 data provided from AGGC file
to Len Stellpflug

January 2005

David Martin

L. B. Stellpflug

Appendix C – Meer oor misting

‘n Bietjie meer oor misting:

<http://www.bigpumpkins.com/ViewArticle.asp?id=36>

Misting by Scott Armstrong

7/18/2000

In this year's quest for a larger pumpkin, I have borrowed an idea used by some heavy hitters in hot climates... Misting. Misting is a great way to keep your plants from suffering from heat stress during the day, which hopefully in the long run will result in a bigger pumpkin.

Have you ever gone out to your patch in the middle of the afternoon and noticed that your leaves are all wilted and droopy? That is the plant's reaction to dealing with heat. It is under stress. To try and alleviate this stress, and keep the pumpkin(s), and the plant in a constant forward direction, some growers mist their plants. Depending on where you grow, misting may, or may not be right for you. For those of you who live in warmer climates and could benefit from misting your plants during the heat of the day, I will outline what I have done, where I purchased these products, and any tips that I have discovered along the way.

All the products I used in setting up my misting system were purchased from a company by the name of Dripworks. They have a website, (www.dripworksusa.com), where you can order a catalog that's chock full of irrigation supplies. I was very happy with the service I received. They were always nice, even after my multitude of questions that, at points I'm sure seemed ridiculous to the non-giant pumpkin grower! I found them to be most knowledgeable, and extremely helpful.

When designing and setting up a misting system you can make it as elaborate, or as simple as you like. It really depends on your needs, your time, and you desire. Options are endless. When I set out to make my own misting system, I wanted one that was

simple, easy to use, and easy to put together. What follows is a sample of the steps I went through to arrive at my current misting system.

The process by which misting works is called evaporative cooling. When the leaves get wet, and the water evaporates, the leaves are cooled. Just like when we are exercising and we sweat we are cooled. Misting also to some degree can cool the air around the plant, which is also beneficial in reducing heat stress. Because we only want the leaves to get wet, and not the ground, most generally tend to mist in short cycles of approximately 5 minutes, every half an hour. Your timer and misters can be adjusted to meet your individual needs of course.

The first step is to decide when you need to mist. Go out and take a look at your plants. If you're not seeing wilt until 2 in the afternoon, and it subsides at 4, then you don't need to mist very long. If on the other hand you're experiencing heat stress at 11:30 in the morning, and it doesn't dissipate until 4:30, then you'll have to mist through a larger portion of the day.

Now that you've decided when you need to mist, you can start to look for a timer/controller. For argument's sake, let's say you want to mist for 5 minutes every half-hour from 12 until 2:30. This would mean that you have 6 start times. 12, 12:30, 1, 1:30 etc. until 2:30. You will need a timer that has the capability to perform that task. One timer that has 6 start times that is able to run in short cycles of 5 minutes every half hour is the Rainbird 1900. It is very easy to program, and at \$47.75 is fairly inexpensive.

If you want to run your misters from 11:30 until 4:30 in the afternoon, for 5 minutes every half hour, you will need a timer that has 11 start times. This is not so easy to find. I have found a timer that has this capability. It is the DIG GREENHOUSE TIMER. This timer is equipped with an "irrigation window" where you can set the time the window opens (11:30A.M) and when the window closes (4:35 P.M), and the duration (5 minutes) in specified intervals (every half hour). Now your plants will be misted for 5 minutes every half hour from 11:30 until 4:30 every day, unless you manually override the program, (simply move a lever on the valve), or change the program altogether. The controller is waterproof and battery powered (two 9 volt batteries), and can be mounted either on top of the valve or on a wall or beam (it is connected by an 18" wire). This is the timer that I have purchased, and, although the instructions are extremely difficult to understand, once I was able to get it operating properly I have no complaints, and am actually very pleased with it's performance. I had Dripworks add brass fittings to inlet and outlet sides of the valve just in case I got a little overzealous with my tightening! The

timer is \$115, and with the fittings, it came to slightly more. It is a very flexible unit in terms of its watering options. If you only need 6 start times or less, I recommend the Rainbird, simply because it's less than half the price of the DIG. However, if you ever decide you want to expand your system, you want more out of it, or you need more than 6-start times, then the DIG's the way to go.

Okay, so, now we've decided when and how long we are going to mist, and we've picked out a controller based on our needs. The next step is to pick out our misters.

Since we only want to get our leaf surfaces wet, we don't need very high output misters. There are many different types of misting heads available. I went with the tornado mister in 4gph. The wind blows the mist around to some degree, but it is very effective in accomplishing getting the leaf surfaces wet. One note on picking out your misters...you should try and overlap the spacing of the misters in your patch, this way you are sure to get all the leaf surfaces wet. Also look at your plant, in my particular case, I have one plant that is very thick, that no matter what gph I use the ground probably wouldn't get wet. My other plant is more open, and I probably should switch to a lower gph, because the ground at times can get wet. Dripworks has a sampler pack that you can purchase to try out an assortment of heads. Or you can just pick out some different ones and try them. Most cost less than a dollar.

The next issue we need to address is spacing. Do we want our misters on risers? Or do we want them to come directly out of the mainline? How far away from each other should the misters be? Where should we put the misters? How many misters do we need? These are all decisions that are easily made based on trial and error in your own patch. The best advice I can give is to allow some overlap with the mist so that you get all surfaces wet. Other than that, careful observation will lead you to your decision. My patch is long, and narrow, so if you looked at my patch from above, you would see 2 misters in a row (one on either end of the width of the patch) then forward from that, one mister in the middle, then 2, then one,all the way down the length of my patch. True, I could have put 3 in a row, but I found the way I set it up allowed for better water distribution. Once you figure this part out, you can decide how many misters you need to purchase.

Finally, before we actually order our system, how do we set it up? And what do we need (other than what we've already addressed) in order to accomplish this? As stated earlier, I went for simple,.....really simple. What I did was, I ran 1/2" mainline tubing down one side of my patch, and tapped into it. Another method that could be used would be to put this mainline on risers down the length of your patch and just tap your misters directly in.

I know Jon Hunt used a similar method last year. Basically, it's up to you. Initially I thought running the mainline down the center of the patch on the ground would be best, but after thinking about it for a while I decided that a pumpkin could end up anywhere in the patch, and I really didn't want to have to start moving my entire misting system to accommodate it. Here is a list of this of what I used to construct my system:

DIG GREENHOUSE TIMER

100' of 1/2" mainline tubing

200' of 1/4" spaghetti tubing

1 female smart loc fitting (for attaching hose to mainline)

1 male smart loc fitting with end cap (for end of mainline tubing)

2 tee filters (200 mesh)

25 tornado 4gph misters

25 1/4" transfer barb's

1 yellow handle punch (for putting holes in mainline tubing)

25 green garden stakes (purchased at home depot)

zip ties

First, I laid the mainline tubing down one side of my patch (when laying out the mainline, it is a good idea to let it stay out in the sun for a bit, it makes the tubing easier to work with.) Then, I attached the male smart loc fitting with end cap to the end of the tubing, and I attached the female smart loc to the other end (this is the end where you will attach your hose). I then attached a tee filter just before the mainline, (connecting it to the female smart loc fitting).

Then, I placed my risers in the patch where I wanted them, and took my yellow handle punch (you can use a scissors, but I wanted to make sure I didn't have any leaks) and punched holes in the mainline where I wanted to run my misters. I inserted a 1/4' transfer barb into the holes. Now all you need to do, is take your spaghetti tubing, cut it to the appropriate length (the height of the riser, plus the distance across the ground to the mainline), inserted one end on the transfer barb attached to the mainline, and screwed the tornado mister into the other end. The mister goes in really easily. Then I took a zip tie, and tied the tubing to the top of the riser. At first wasn't sure this would hold, but, if you tie it at the very top, where the mister goes into the tubing, things are pretty stiff there, and you can pretty much make it as tight as you want without worrying about impeding water flow. Continue this process until you are done with the patch. Then, attach your controller (be sure and program it) to your water source, (I have a tee filter after the timer

as well), and attach this set up to your mainline, and your done! Congratulations, you now have a system that will keep your plants cool on the hottest of days!

Ultimately actually setting it up was easier than I anticipated. It is also a lot easier to do if there isn't much plant taking up your patch. If your plant is large, it will be difficult, (but not impossible), to set this up around it, especially running the tubing through a maze of vines. You can also zip tie the tubing to the bottom of the riser as well. Be careful when walking around in the patch not to trip over the tubing. Next year I think I will bury the spaghetti tubing just for that reason. In addition, I added a "vee" on the outlet side of the valve. This allows me to use a hose whenever I feel like it, without running the misters or taking the whole setup apart. It does not affect the programming in any way.

Since I started using a misting system (this year) I have noticed no wilt whatsoever. In the past, no matter how much I watered in the morning, I would still get wilt, and at times even leaf burn. So, I guess misting does work!

Total cost for my set up was around \$175 dollars not including the stakes. Obviously the timer was the most expensive part, but all other parts were inexpensive. Much more elaborate systems can be made if you desire, and perhaps even more simpler and cheaper systems can be made with some ingenuity. This is just what I came up with, and I'm very satisfied.... especially when I hear about guys who spend over \$300 just on the timer ALONE. Now get out there, keep those plants cool, and grow a giant!

RE: beating the heat

To: <pumpkins@hort.net>
Subject: RE: beating the heat
From: "Dale Fisher" <daleefisher@starband.net>
Date: Sun, 6 Jul 2003 16:48:03 -0700
Content-transfer-encoding: 7bit
Content-type: text/plain; charset="us-ascii"
In-reply-to: <000c01c34409\$a9870b20\$54e43ace@joannehoffman>
List-archive: <<http://www.hort.net/lists/pumpkins/>> (Web Archive)
Reply-to: pumpkins@hort.net
Sender: owner-pumpkins@hort.net

Mark,

FWIW....I am in Southern Oregon, and beating the heat is the name of the game for me. I mist regularly and had no droop when it hit 107 degrees. I mist for between 3 and 10 minutes every 30 minutes.

I am also working on getting shade cloth up.

God Bless,

Dale E Fisher
daleefisher@starband.net

-----Original Message-----

From: owner-pumpkins@hort.net [mailto:owner-pumpkins@hort.net] On Behalf Of Joanne Ward

Sent: Sunday, July 06, 2003 2:58 PM

To: pumpkins@hort.net

Subject: beating the heat

It gets over 100 degrees where I live. I have never grown Atlantic Giants in this climate before. What is the best way to keep my pumpkin from cooking?

It is hard to give it total shade because it is also very windy here and I have to be careful what I put up because it may do more damage than it is worth. I have a sun screen made of layers of cheesecloth, but I doubt that will be enough. How about misting? Can they take being wet? Any thoughts will be appreciated.

Mark Ward
The Dalles OR

Pumpkin-growing archives: <http://www.hort.net/lists/pumpkins/>
To sign-off this list, send email to majordomo@hort.net with the message text UNSUBSCRIBE PUMPKINS

Appendix D – Die Misting Timer

Hier is instruksie vir die timer. Dit is nogal 'n eenvoudige stroombaan om te bou. Die komponente is ook baie goedkoop. Pas net die timer aan dat dit 'n aansiklus het van so 5 minute en 'n afsiklus van 25 minute.

Bron:

http://leda.lycaeum.org/Documents/Revised_Puerto_Method_Humidifier_Timer.10326.shtml

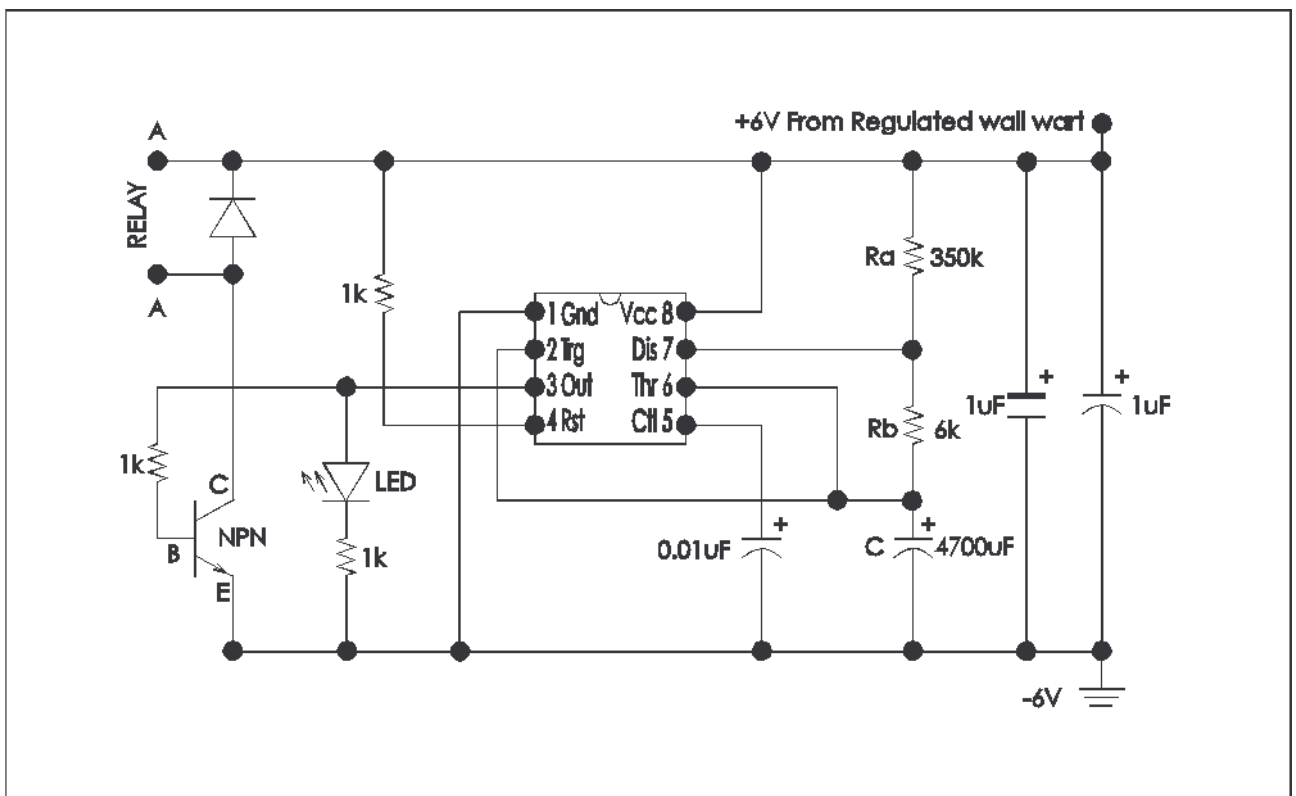


Figure 1. Connections

Revised Puerto Method Humidifier Timer

[What's Related >>](#)

Foreword

These instructions are for making a 20min "off" / 20s "on" timer needed in Puerto's mushroom growing method. One might ask why do we need new huge instructions instead of Puerto's circuit board picture. Well there are several reasons. The biggest reason is that Puerto's timer doesn't work, if it's made like in his drawing. In his picture pins 2 and 6 aren't connected so the timer won't work and the formulas for counting "on" and "off" times are faulty. Second reason is that these instruction are for beginners - if you know how to use a soldering iron you'll be able to make the timer. These instructions also tell you how everything really works. If you know something about electronics, you will just need **figure 1**. Also some people in Europe might have thought that it's hard to change the timer to work with 240V AC, but you just have to change the relay (I'll tell more about this later). My instructions also explain how to change your timer to a "professional" one which allows you to regulate "on" and "off" times.

All the parts needed to make the timer can be bought from electronics component stores like Radio Shack.

Figure 1 - The Complete Circuit

Formulas

$$\begin{aligned} \text{Time "on":} & \quad 0.695 \times R_b \times C \Leftrightarrow \\ & \quad 0.695 \times 6000 \times 0.0047 = 19.6 \text{ sec} \end{aligned}$$

$$\begin{aligned} \text{Time "off":} & \quad 0.695 \times (R_a + R_b) \times C \Leftrightarrow \\ & \quad 0.695 \times 356000 \times 0.0047 = 1162 \text{ sec} = 0:19:23 \end{aligned}$$

(remember that k = times 1000, M = times 1 000 000 and u = one millionth)

First "off" period after connecting power supply will be about twice as long as it should be. So, don't panic! Just wait twice as long. Second period will be all right. Remember also that "off" period comes first.

Components

Resistors (see **figure 2**):

Like the name says they are for resisting the power that goes trough. They can be placed either way (no "-" or "+"). Use normal 0.25W resistors. Mark which resistor is which in the store because they aren't marked with numbers but color bands that you might not undestand back in home.

R_a and R_b can be replaced with trimmers (regulateable resistors) so one can regulate "on" (1-60s) and "off" (4s-60min) times. But if so, they have to be connected in serial with resistors (R_a with 1k and R_b with 330ohms) to protect the circuit from oscillating too fast. Trimmers (see **figure 3**) pin out1 is connected. If out2 is connected insteedad, time will be "max" when trimmer is turned "min" and vice versa.

Hint: If you use trimmers turn them to "zero" when testing the timer. Now you don't have to wait 20 minutes but 5s if everything works.

Led (see **figure 2**):

Use normal 5mm LED. LED work only one way. Check which pin is which by placing one pin in "+" and another pin in "-" of a 3-6V power supply/battery. If it light up it's right way. Now you will place the LED's "+" to out pin (3) of "555" (see **figure 1**). You may also look inside the LED: Straight pin is "+" and arrow like horizontal one is "-".

LED lights up when the timer is on "HOLD" position (= "off"). So it should light up when you plug the timer. If it doesn't something is wrong. Unplug it and check everything one more time.

Diode (see **figure 2**):

The diode is for protecting the "555" against a power peak when the relay switches off. A line on the head of the arrow of the symbol is marked with a line (color band) on a diode. Many different diodes will work. Mine is 1N 4007, but you can ask "good" one from your store - they will know.

NPN Transistor (see **figure 6**):

Transistor is for controlling the relay: when the base (B) gets a signal from the "555" (by pin 3) it let's the power go trough from E to C and the relay will switch. Ask which pin is which (B, C, E) from the store. In my timer transistor is BC 639 which can handle about 1A. Buy the same or equal.

Capacitors (see **figure 2**):

Capacitors are for "storaging power". Capacitor "C" is a heart of the timer (while the "555" being a brain). Capacitor "C" let's the power to oscilate between 1/3 and 2/3 of the main voltage, which will control the timer. Chargeing and dischargeing times are controlled with Ra and Rb. Usually "-" pin in capacitors is marked but if neither pin is marked it usually means it can be place either way. But check this from the component seller. Capacitor "C" (4700 μ F) can be replaced with other size capacitor but it shouldn't get much smaller because then Ra and Rb has to be changed to bigger ones and that's not recommended. You should also mark your capacitors in the store because rather small ones are marked only with code numbers.

Electrolytic (see **figure 2**):

Special kind of capacitor. Same rules about pins and "markings" as capacitors. It can also easily be mixed with capacitors. Capacitor and electrolytic on the right in a fig.1 are for protecting power supply from associated circuitry. Your timer might work w/o them but they are recommended.

"555":

There are many circuits that are the same or will work for example LM555, LM555C, MC1455, etc. If "555" gets hot when the power supply is plugged in something is wrong - unplug it and check your connections. "555" will heat up about to temperature of your finger tip but it shouldn't get hot.

Usuallally pin 1 is marked with a dot on the circuit or top head of the circuit (pins 1 and 8) is cut like in the figure 1.

Also buy a base (carrier) for the "555" to prevent burning it when you solder it onto circuit board.

Relay (see **figure 4**):

Relay is an "on/off" switch that is controled by the circuit board. Buy a relay that can handle two cords and has at least "normaly on" position, but it might be hard to find, so you may buy a relay

that has also "normaly off" position (like I did). If you live in USA you should use relay that handles 120V and in Europe 240V. Relay can be hooked w/o thinking which pin is "-" and which is "+" - it doesn't matter. Relay should look/be hooked like in fig.4. Recommended controlling voltage of the relay should be 5 volts (pin 3 gives about 4.5 volts).

Regulating Your Power Supply

If your 6V power supply isn't regulated (cheap ones from department stores) aren't usually regulated) it might be smart to regulate it with a regulator, so the voltage won't vary at all but is very stable. It's pretty easy to make and you can ask more about it from your component store. My regulator is connected like in **figure 5**, but the pin placeing, input voltage (it should handle 9 volts), max power handling etc. may be different. Ask this out!

Making the Circuit Board

You should have a board that has holes on it and has separate copper bands. Then you have to scrape off some copper from here and there to get proper connections (I use a miniature drill with a grinder). Remember that if (when) you have to connect two separate bands together just use thin wire. When you are drafting your board it might be smart to draw it onto transparency. Now you can turn it up-side-down and see the top side and vice versa. My board looks like in **figure 6**, but you should draw your own to get a touch how things work.

Parts to Buy

- Resistors (0.25W)
 - 3x 1k
 - 1x 350k (or 1M trimmer and 1k resistor)
 - 1x 6k (or 22k trimmer and 1k resistor)
- 5mm red LED
- Diode
- NPN Transistor (BC 639)
- "555" circuit and base for it
- Capacitors
 - 1x 0.01 μ F
 - 1x 4700 μ F
 - 1x 1 μ F
 - 1x 1 μ F Electrolytic
- Relay (see explanation)
- Circuit board (see explanation)
- 6V DC (min 300mA) regulated power supply. If not regulated you should take these parts:
 - 9V DC power supply
 - Reulator (see explanation)
 - 0.1 μ F and 1 μ F capacitors
- Thin wire (2 feet/0.5 m)
- 5feet/1.5m power cord (for example 2x0.75mm)
- Female wall plug
- Male wall plug
- Case for the timer (My timer is in one ventilated case with a power supply)

Afterword

These instructions and figures can be freely distributed if no money is taken. Original author must to be mentioned.

- searcher@nym.lycaem.org

Figures

- Figure 1
- Figure 2
- Figure 3
- Figure 4
- Figure 5
- Figure 6

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Modified 9/25/2000 21:05:11

Leda version 1.4.3

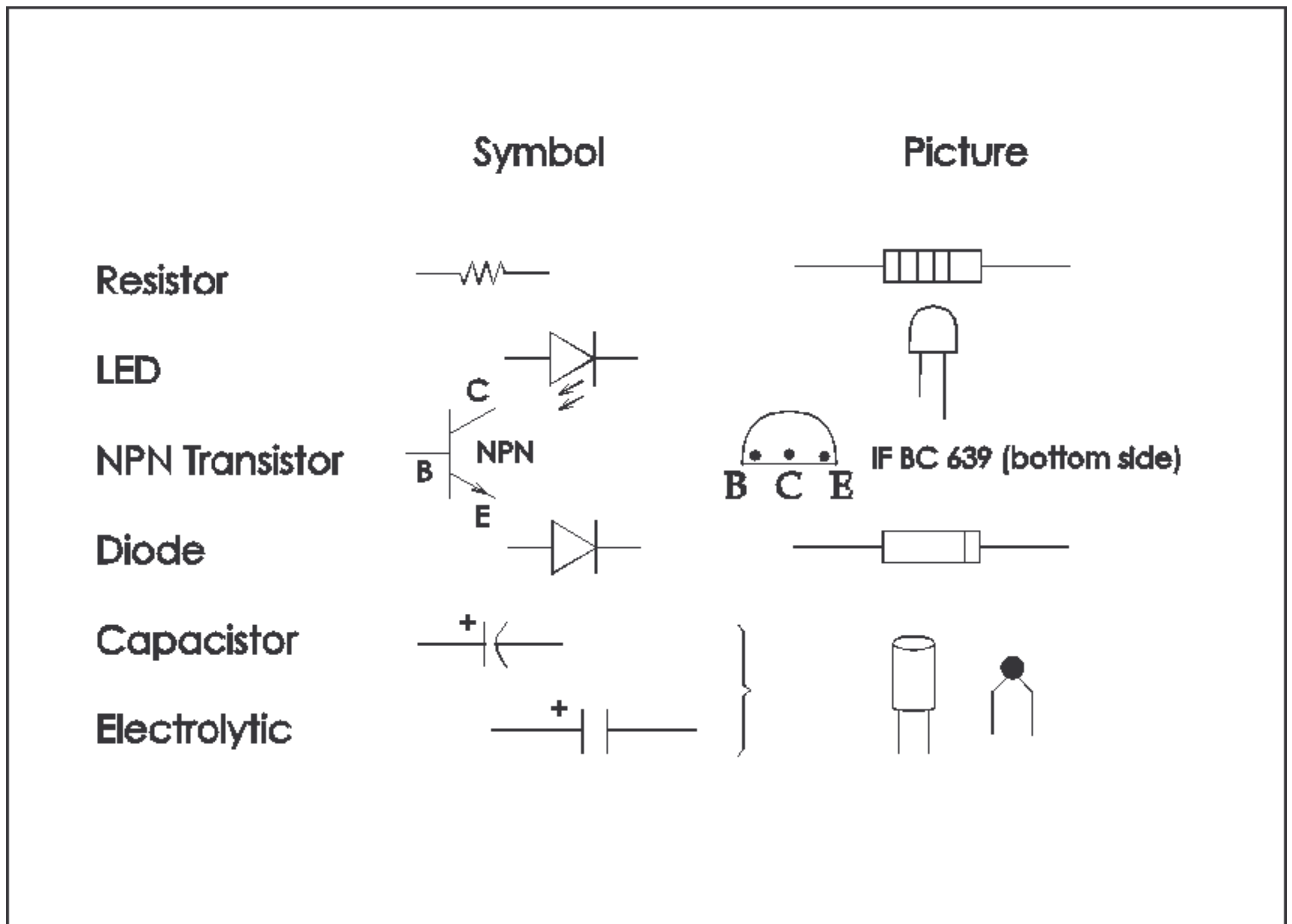


Figure 2. Components

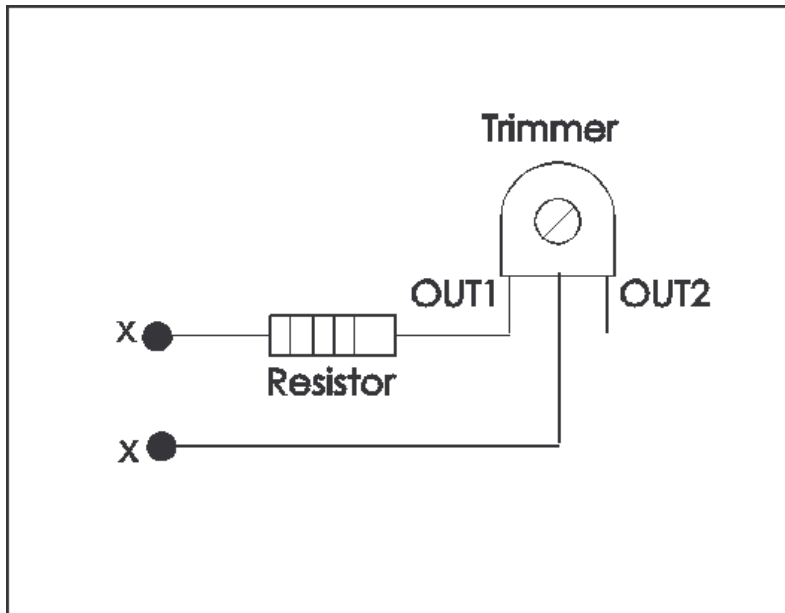


Figure 3. Connecting trimmer. Put cords X and X onto place of the pins of the Ra or Rb.

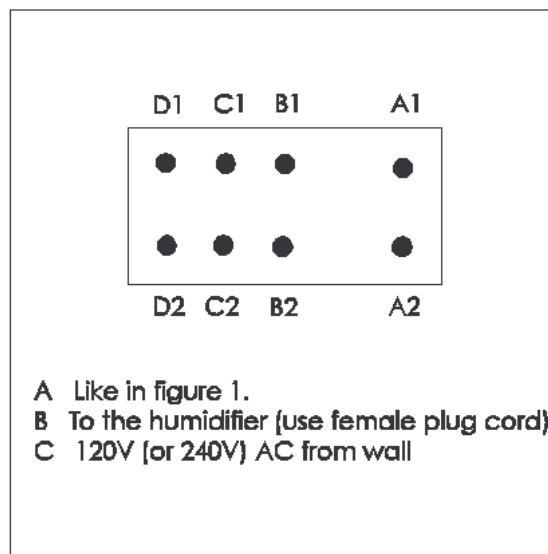


Figure 4. Relay. Do not hook D. If you connect your humidifier there it's "ON" when it should be "OFF" and vice versa. Some relays might vary on pins - ASK!

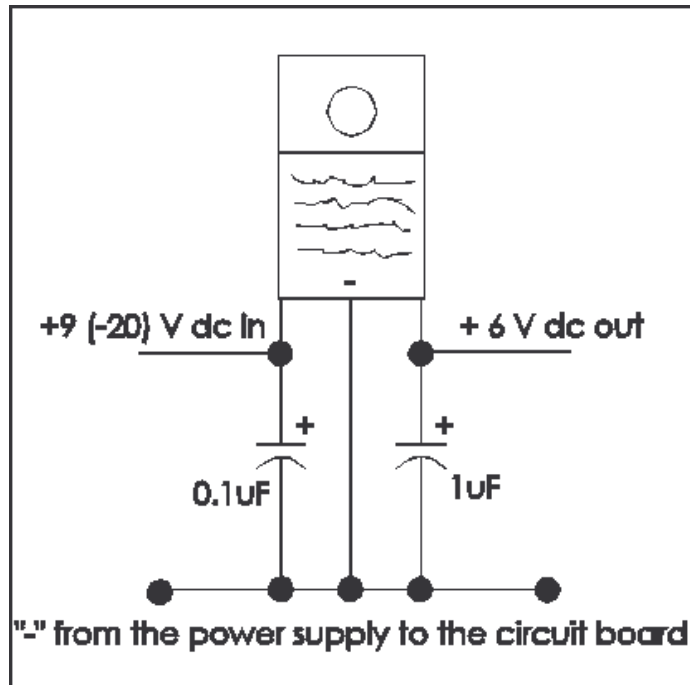


Figure 5. My Regulator

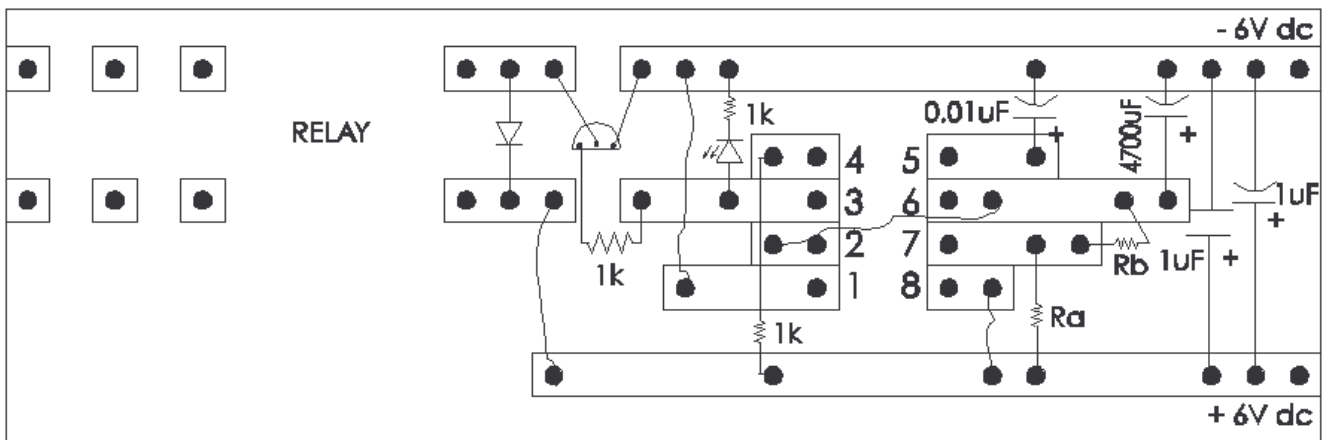


Figure 6. An example of a circuit board. This is the bottom side (copper lined side), so the components you can see are actually on the other side. When planing you own board use rather figure 1. than this one. This picture is turned up-side-down over the horizontal axell (ground ("-") is now on the top but in figure 1. it's on the bottom)

Appendix E - Unit conversions

1 pound =	0.45359237 kilogram
1 kilogram =	2.204622622 pound
1 inch = 1'' =	2.54 cm
1 foot = 1' = 12 inches =	30.48 cm
1 centimeter =	0.3937007874 inch
1 meter =	3.280839895 foot
1 foot ² =	0.09290304 meter ²
1 metre ² =	10.76391042 foot ²
1 ounce =	29.57352956 milliliter
1 quart =	0.946352946 liter
1 US gallon =	3.79 liter
1 liter =	0.26 US gallons
° C =	$(5/9)*(F-32)$
° F =	$(9/5)*C+32$
1 bar =	14.508 psi (lb/in ²)
1 psi or lb/in ² =	0.06893 bar