

# Fruit Growth Monitoring

Chris Peters

Victoria Fruitgrowers

# Measuring Fruit Growth: Why?

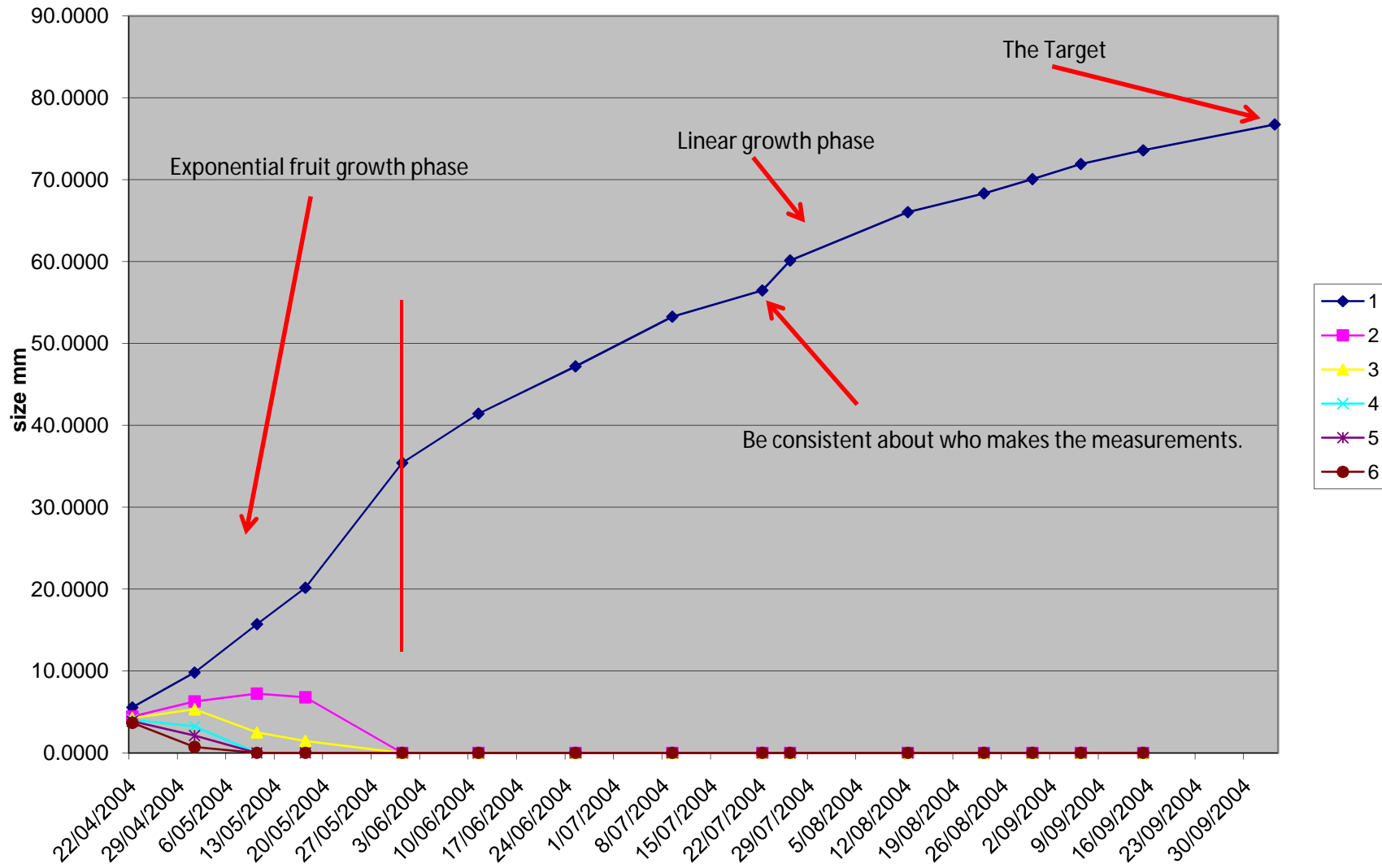
Our fruit is the synthesis and integration of 16 to 19 months worth of effort.



Thinning!

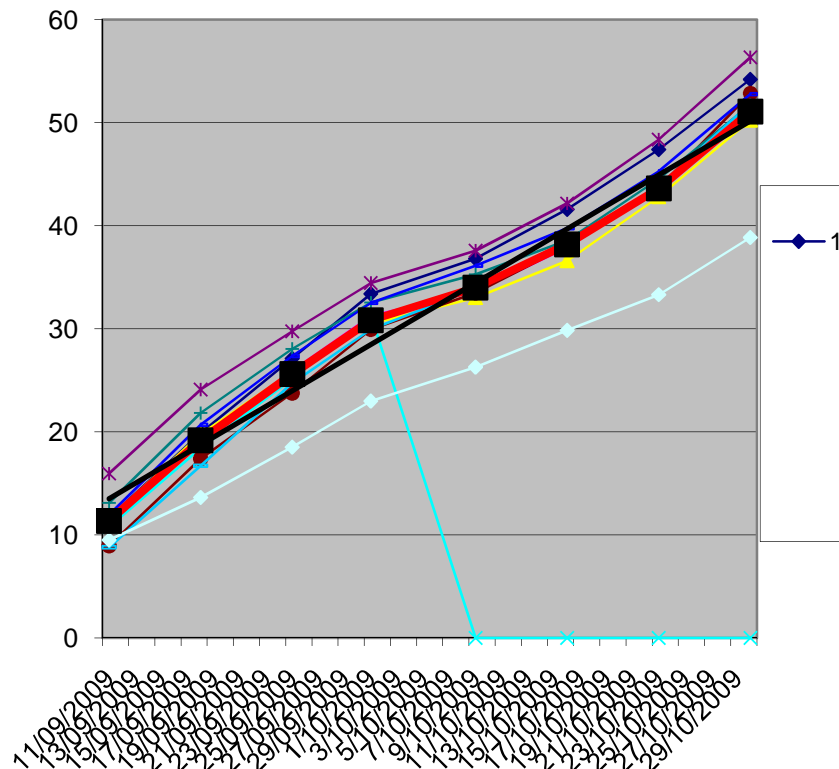
# Season long benefits

NC 40 growth rate

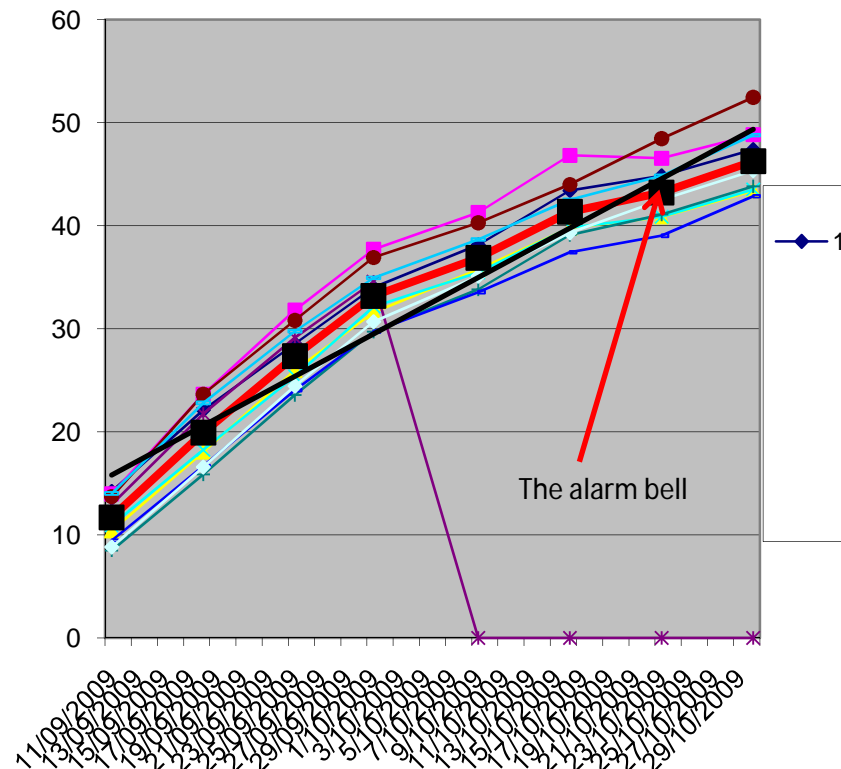


# Using a Caliper to Guide Irrigation and Fertility Programs

## Good valve diaphragm



## Bad valve diaphragm



# What you will need best quality flagging tape



What you will need a clipboard, some paper, a sharpie, an optivisor, and a digital caliper



# How to do it

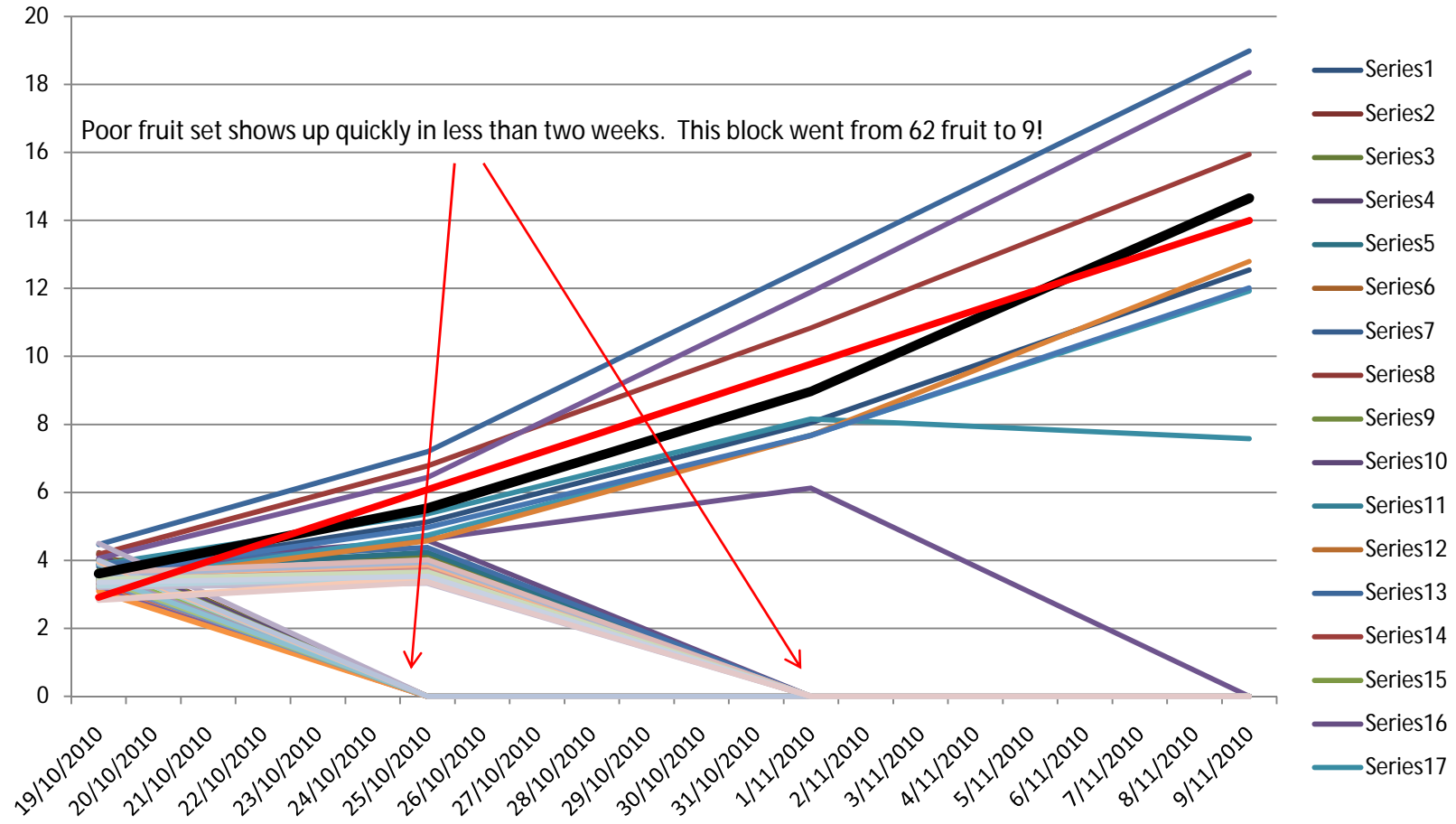


Mark the fruit to know where to take the measurement.





# A problem



time Block	Brown-Shepherd Packhams		2hr 35min	1hr	25 min	25 min	A quick visual indication of setting strength within the spurs.		
Spur #	Fruit #		153	60	43	34	39%	28%	22%
size in mm			terminal bud on one year old wood				growth rate	growth rate	growth rate
			19/10/2010	25/10/2010	1/11/2010	9/11/2010	18-25/10/2010	25/10-01/11/2010	01-09/11/2010
1	1	1	9.09	10.68	10.31	0	0.2650	-0.0529	-1.2888
1	2	2	9.65	12.56	16.69	20.98	0.4850	0.5900	0.5363
1	3	3	9.03	11.3	12.11	11.24	0.3783	0.1157	-0.1088
1	4	4	8.07	9.69	9.31	0	0.2700	-0.0543	-1.1638
1	5	5	7.87	9.3	8.72	0	0.2383	-0.0829	-1.0900
1	6	6	4.67	0	0	0	-0.7783	0.0000	0.0000
1	7	7	4.65	0	0	0	-0.7750	0.0000	0.0000
1	8	8	4.06	0	0	0	-0.6767	0.0000	0.0000
2	1	9	9.2	10.92	10.58	0	0.2867	-0.0486	-1.3225
2	2	10	8.57	10.75	13.61	17.93	0.3633	0.4086	0.5400
2	3	11	4.77	0	0	0	-0.7950	0.0000	0.0000
2	4	12	7.75	9.25	0	0	0.2500	-1.3214	0.0000
2	5	13	4.16	0	0	0	-0.6933	0.0000	0.0000
2	6	14	8.2	10.94	10.8	0	0.4567	-0.0200	-1.3500
2	7	15	4.27	0	0	0	-0.7117	0.0000	0.0000
2	8	16	4.15	0	0	0	-0.6917	0.0000	0.0000
3	1	17	8.58	11.76	12.02	0	0.5300	0.0371	-1.5025
3	2	18	8.25	11.79	15.64	19.56	0.5900	0.5500	0.4900
3	3	19	7.31	10.33	13.66	16.7	0.5033	0.4757	0.3800
3	4	20	4.73	0	0	0	-0.7883	0.0000	0.0000
3	5	21	4.13	0	0	0	-0.6883	0.0000	0.0000
3	6	22	4.51	0	0	0	-0.7517	0.0000	0.0000
3	7	23	4.32	0	0	0	-0.7200	0.0000	0.0000
4	1	24	9.62	13	17.16	17.85	0.5633	0.5943	0.0863
4	2	25	8.81	12.74	16.08	15.78	0.6550	0.4771	-0.0375
4	3	26	7.9	11.06	12.94	0	0.5267	0.2686	-1.6175
4	4	27	7.78	11.47	13.68	13.41	0.6150	0.3157	-0.0337
4	5	28	6.38	7.56	0	0	0.1967	-1.0800	0.0000
4	6	29	5.04	0	0	0	-0.8400	0.0000	0.0000
4	7	30	4.2	0	0	0	-0.7000	0.0000	0.0000
4	8	31	4.62	0	0	0	-0.7700	0.0000	0.0000
4	9	32	4.69	0	0	0	-0.7817	0.0000	0.0000
5	1	33	11.42	14.74	17.76	22.47	0.5533	0.4314	0.5888
5	2	34	3.42	0	0	0	-0.5700	0.0000	0.0000
5	3	35	8.99	12.67	16.95	21.15	0.6133	0.6114	0.5250
5	4	36	4.22	0	0	0	-0.7033	0.0000	0.0000
5	5	37	3.47	9.69	0	0	1.0367	-1.3843	0.0000
5	6	38	3.46	0	0	0	-0.5767	0.0000	0.0000

# Time

- Flower bud initiation to harvest 16 to 19 months or 11,520 to 13,680 hours.
- Set up and monitoring 4 to 7 months or 10 to 15 hours.
- Cost of time as a percent of season on the tree is 0.09% to 0.11%
- It is a very small amount of time given to insure the positive outcome of the crop.