Greenvale Project

Muntazir Abidi and Ying

Contents

1   K-Nearest Neighbors : Trained with –TuberData.csv files

1.1   Maris Piper

1.1.1   528

	Total Tubers	Total Weight	Mean Size	Std	CoV	K
0	254	10.647	37.012	7.62	20.588	106.55

	MidBand	True Counts	True Weight	Predicted Counts	Predicted Weight
0	17.5	7	0.0307	5	0.0260
1	22.5	14	0.1161	15	0.1320
2	27.5	15	0.2368	23	0.3675
3	32.5	52	1.2990	51	1.3725
4	37.5	58	2.1406	66	3.0667
5	42.5	62	3.2481	65	4.0202
6	47.5	35	2.4778	21	1.6451
7	52.5	11	1.0984	10	1.0525

1.1.2 Duffy

	Total Tubers	Total Weight	Mean Size	Std	CoV	K
0	317	9.143	32.642	7.273	22.281	106.44

	MidBand	True Counts	True Weight	Predicted Counts	Predicted Weight
0	17.5	23	0.0787	24	0.1140
1	22.5	20	0.1721	22	0.2430
2	27.5	56	0.8653	56	0.8734
3	32.5	90	2.3360	85	2.1497
4	37.5	84	3.1307	91	3.4877
5	42.5	36	1.8976	29	1.2406
6	47.5	6	0.4724	8	0.5945
7	52.5	2	0.1903	2	0.1883

1.1.3 M12

	Total Tubers	Total Weight	Mean Size	Std	CoV	K
0	285	20.717	43.289	10.621	24.535	103.73

	MidBand	True Counts	True Weight	Predicted Counts	Predicted Weight
0	17.5	7	0.0301	7	0.0286
1	22.5	16	0.1292	16	0.1598
2	27.5	18	0.2854	19	0.2925
3	32.5	14	0.3109	17	0.4603
4	37.5	23	0.8663	27	1.2490
5	42.5	59	3.2002	61	2.9734
6	47.5	65	5.3569	51	4.2404
7	52.5	46	5.0693	56	6.5200
8	57.5	30	4.2494	25	3.5400
9	62.5	7	1.2189	6	0.9300

1.1.4 R21

	Total Tubers	Total Weight	Mean Size	Std	CoV	K
0	274	7.606	32.299	6.717	20.796	106.67

	MidBand	True Counts	True Weight	Predicted Counts	Predicted Weight
0	17.5	12	0.0587	7	0.0280
1	22.5	31	0.2988	28	0.2600
2	27.5	66	1.0794	68	0.9961
3	32.5	47	1.2737	88	2.7422
4	37.5	83	2.8706	40	1.6052
5	42.5	35	2.0248	35	1.7548
6	47.5	0	0.0000	8	0.4300
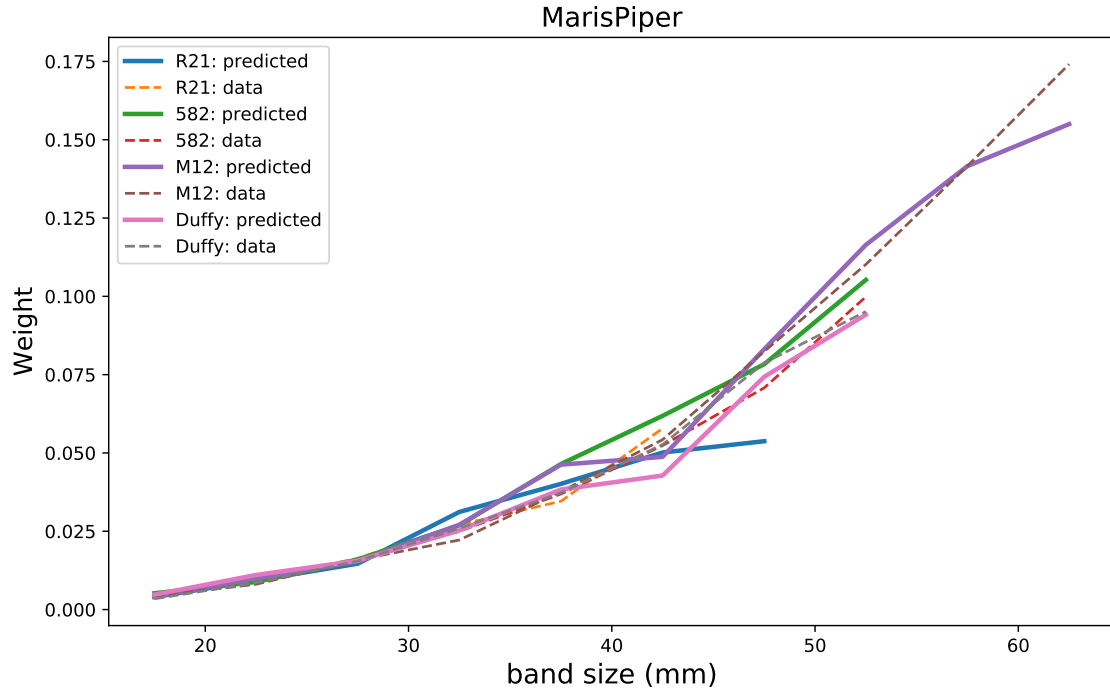
Figure 1: Tuber size vs weight plots

1.2 Marfona

1.2.1 APT Farming2

	Total Tubers	Total Weight	Mean Size	Std	CoV	K
0	55	13.493	65.636	14.184	21.61	104.85

	MidBand	True Counts	True Weight	Predicted Counts	Predicted Weight
0	27.5	1	0.015900	1	0.0109
1	42.5	2	0.118300	4	0.2200
2	47.5	4	0.268100	4	0.3462
3	52.5	4	0.397800	3	0.2600
4	57.5	6	0.795599	8	0.7761
5	62.5	5	0.812800	4	0.7006
6	67.5	9	2.036200	8	1.6340
7	72.5	8	2.259300	8	2.0144
8	77.5	4	1.257100	8	2.3202
9	82.5	6	2.215500	2	0.7622
10	90.0	6	3.315999	5	2.6000

1.2.2 APT Farming3

	Total Tubers	Total Weight	Mean Size	Std	CoV	K
0	47	9.822	61.531	14.373	23.359	103.69

	MidBand	True Counts	True Weight	Predicted Counts	Predicted Weight
0	37.5	2	0.079400	2	0.05533
1	42.5	4	0.214400	6	0.25415
2	47.5	8	0.631200	5	0.37275
3	52.5	6	0.707800	5	0.44910
4	57.5	2	0.283500	5	0.42000
5	62.5	8	1.514800	6	0.84300
6	67.5	3	0.645200	4	0.86080
7	72.5	1	0.309600	7	1.51963
8	77.5	7	2.451700	4	1.19560
9	82.5	5	2.223099	2	0.65400
10	90.0	1	0.761000	3	1.07030

1.2.3 Early Baker

	Total Tubers	Total Weight	Mean Size	Std	CoV	K
0	59	12.831	57.119	25.143	44.019	94.98

	MidBand	True Counts	True Weight	Predicted Counts	Predicted Weight
0	17.5	4	0.0177	4	0.00833
1	22.5	6	0.0491	5	0.03332
2	27.5	2	0.0238	3	0.02933
3	32.5	3	0.0728	2	0.05112
4	37.5	4	0.1437	7	0.23236
5	42.5	9	0.4445	6	0.25800
6	47.5	0	0.0000	1	0.04300
7	72.5	4	1.3125	9	2.22770
8	77.5	17	5.9162	6	1.51110
9	82.5	6	2.7159	11	3.11720
10	90.0	4	2.1352	5	1.85810

1.2.4 EBField-Dig1

	Total Tubers	Total Weight	Mean Size	Std	CoV	K
0	89	15.393	58.961	14.576	24.721	105.82

	MidBand	True Counts	True Weight	Predicted Counts	Predicted Weight
0	17.5	2	0.007200	2	0.00420
1	22.5	2	0.016900	2	0.01666
2	27.5	1	0.013700	1	0.01590
3	32.5	3	0.072300	3	0.06810
4	37.5	3	0.092900	3	0.09060
5	42.5	2	0.089000	2	0.08000
6	47.5	8	0.633200	6	0.37380
7	52.5	9	1.013300	7	0.66680
8	57.5	13	1.808199	15	1.91470
9	62.5	17	3.119700	13	1.77560
10	67.5	0	0.000000	13	2.40990
11	72.5	21	5.661500	15	3.48740
12	77.5	8	2.865500	5	1.15210
13	82.5	0	0.000000	2	0.51060

1.2.5 EBField-Dig2

	Total Tubers	Total Weight	Mean Size	Std	CoV	K
0	91	18.93	62.555	15.254	24.385	105.57

	MidBand	True Counts	True Weight	Predicted Counts	Predicted Weight
0	17.5	2	0.0061	2	0.00420
1	27.5	4	0.0529	4	0.05716
2	32.5	1	0.0227	1	0.02556
3	37.5	3	0.1067	3	0.09060
4	42.5	1	0.0588	1	0.04000
5	47.5	6	0.4734	5	0.31150
6	52.5	6	0.5965	8	0.72230
7	57.5	5	0.6944	6	0.64500
8	62.5	12	2.0106	10	1.20695
9	67.5	15	3.5571	15	2.70025
10	72.5	22	6.3764	19	4.76470
11	77.5	7	2.2171	12	3.44960
12	82.5	7	2.7571	5	1.73640

1.2.6 Park Farm

	Total Tubers	Total Weight	Mean Size	Std	CoV	K
0	50	11.336	65.686	11.706	17.821	107.72

	MidBand	True Counts	True Weight	Predicted Counts	Predicted Weight
0	47.5	5	0.3857	4	0.29240
1	52.5	6	0.5704	8	0.61370
2	57.5	8	1.1313	5	0.32412
3	62.5	7	1.3195	6	0.75480
4	67.5	9	2.2148	12	2.11430
5	72.5	9	2.5077	7	1.52250
6	77.5	1	0.2859	4	0.90540
7	90.0	5	2.9205	5	1.87600

1.2.7 Salmons

	Total Tubers	Total Weight	Mean Size	Std	CoV	K
0	57	10.966	60.965	13.301	21.817	105.61

	MidBand	True Counts	True Weight	Predicted Counts	Predicted Weight
0	32.5	1	0.018100	1	0.02333
1	37.5	2	0.068600	2	0.06400
2	42.5	2	0.107500	2	0.07380
3	47.5	6	0.468199	3	0.22635
4	52.5	8	0.909600	16	1.15107
5	57.5	11	1.357000	6	0.62432
6	62.5	9	1.481400	8	1.31440
7	67.5	3	0.726800	5	0.83702
8	72.5	7	2.115500	3	0.57280
9	77.5	1	0.324900	6	1.57580
10	82.5	2	0.857300	2	0.70180
11	90.0	5	2.531600	3	1.11540
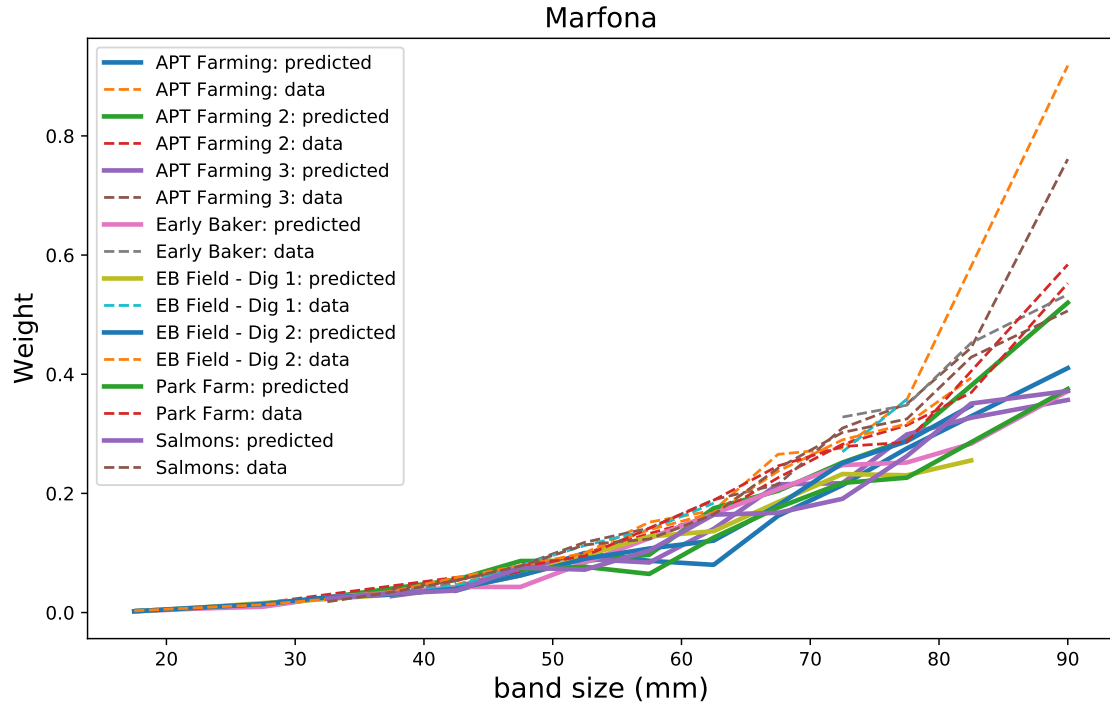
Figure 2: Tuber size vs weight plots

1.3 Orchestra

1.3.1 Oxford Field

	Total Tubers	Total Weight	Mean Size	Std	CoV	K
0	70	10.114	54.548	9.507	17.429	103.95

	MidBand	True Counts	True Weight	Predicted Counts	Predicted Weight
0	42.5	9	0.4771	22	0.8539
1	47.5	11	0.8548	6	0.3542
2	52.5	12	1.2029	16	1.2790
3	57.5	8	1.1904	8	0.9799
4	62.5	15	2.6923	23	4.0729
5	67.5	11	2.4860	4	0.7260
6	72.5	4	1.2108	3	0.6542
7	82.5	0	0.0000	1	0.2327

1.3.2 Plumbs

	Total Tubers	Total Weight	Mean Size	Std	CoV	K
0	59	11.326	61.434	10.981	17.874	106.5

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	MidBand	True Counts	True Weight	Predicted Counts	Predicted Weight
0	37.5	1	0.039100	1	0.0381
1	42.5	3	0.168200	3	0.1688
2	47.5	5	0.414800	6	0.4742
3	52.5	10	1.026700	8	0.8191
4	57.5	8	1.054298	11	1.4859
5	62.5	8	1.394900	9	1.6848
6	67.5	6	1.426200	8	1.5804
7	72.5	9	2.594600	6	1.7784
8	77.5	5	1.684700	7	2.2665
9	82.5	4	1.522100	2	1.0464

1.3.3 Water Lane

	Total Tubers	Total Weight	Mean Size	Std	CoV	K
0	48	9.936	62.108	12.12	19.514	104.99

	MidBand	True Counts	True Weight	Predicted Counts	Predicted Weight
0	32.5	0	0.0000	1	0.0141
1	42.5	3	0.1724	3	0.1672
2	47.5	4	0.3303	3	0.2096
3	52.5	5	0.5082	10	1.0832
4	57.5	8	1.0750	4	0.5770
5	62.5	10	1.8365	10	1.7184
6	67.5	5	1.0851	8	1.6835
7	72.5	3	0.7353	4	1.2260
8	77.5	4	1.3858	1	0.2924
9	82.5	6	2.8075	7	2.4110
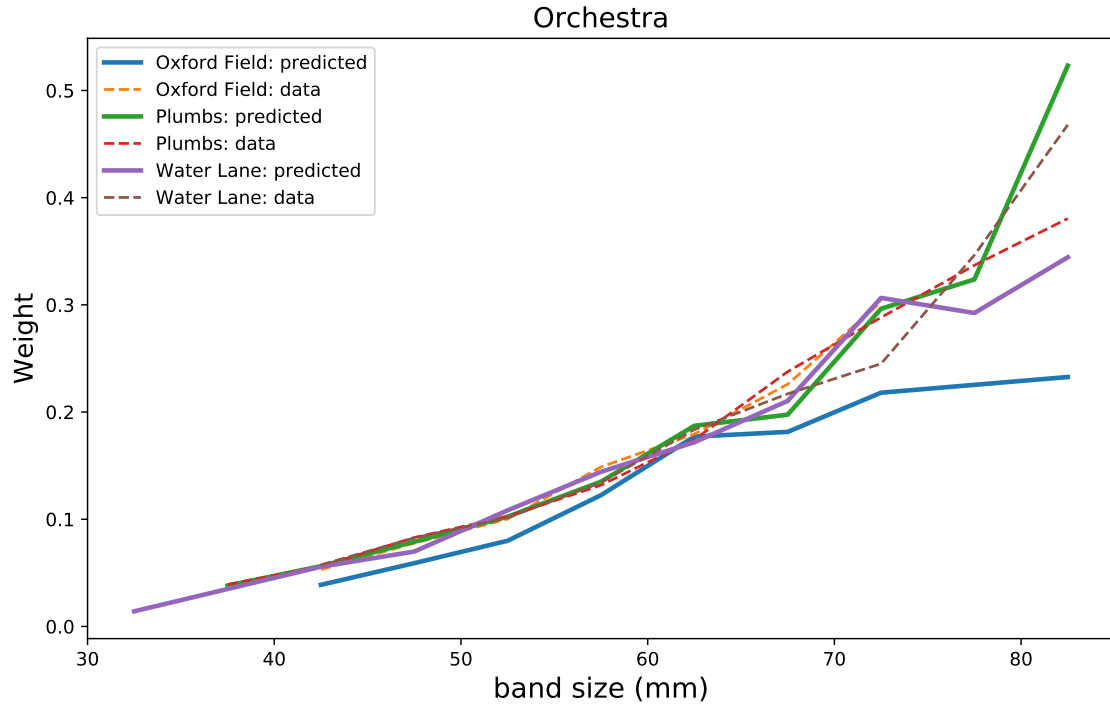
Figure 3: Tuber size vs weight plots

1.4 Lady Balfour

1.4.1 Commercial Crop1

	Total Tubers	Total Weight	Mean Size	Std	CoV	K
0	103	10.513	44.76	14.526	32.453	95.78

	MidBand	True Counts	True Weight	Predicted Counts	Predicted Weight
0	17.5	11	0.05470	11	0.04180
1	22.5	4	0.04300	3	0.03000
2	27.5	7	0.15040	6	0.11000
3	32.5	5	0.18760	5	0.13966
4	37.5	10	0.48220	10	0.33099
5	42.5	6	0.47810	9	0.61436
6	47.5	24	2.52900	17	1.54788
7	52.5	15	2.11040	14	1.47260
8	57.5	13	2.50272	15	2.06560
9	62.5	4	0.93450	10	1.93000
10	67.5	4	1.04070	3	0.67000
11	77.5	0	0.00000	1	0.34000

1.4.2 Commercial Crop2

	Total Tubers	Total Weight	Mean Size	Std	CoV	K
0	65	5.576	43.603	13.472	30.897	98.87

	MidBand	True Counts	True Weight	Predicted Counts	Predicted Weight
0	17.5	1	0.0031	4	0.04380
1	22.5	3	0.0205	3	0.05000
2	27.5	5	0.0662	4	0.10666
3	32.5	8	0.1877	9	0.37698
4	37.5	6	0.2343	6	0.38532
5	42.5	8	0.4581	10	0.84720
6	47.5	8	0.6172	9	1.07700
7	52.5	10	1.2113	4	0.59234
8	57.5	5	0.7108	14	2.82901
9	62.5	11	2.0673	3	0.71180
10	72.5	0	0.0000	2	0.50360

1.4.3 Field Sample 1

	Total Tubers	Total Weight	Mean Size	Std	CoV	K
0	86	11.429	50.058	12.593	25.157	98.09

	MidBand	True Counts	True Weight	Predicted Counts	Predicted Weight
0	17.5	3	0.0179	2	0.00760
1	22.5	1	0.0130	2	0.01380
2	27.5	4	0.0770	3	0.06000
3	32.5	6	0.2003	4	0.11999
4	37.5	5	0.2667	7	0.27383
5	42.5	7	0.5232	8	0.52956
6	47.5	12	1.1623	13	1.20878
7	52.5	15	2.0406	11	1.37610
8	57.5	16	3.0171	16	2.47510
9	62.5	11	2.3842	14	2.34370
10	67.5	5	1.3655	4	0.92210
11	72.5	1	0.3615	1	0.25180
12	77.5	0	0.0000	1	0.25180

1.4.4 Field Sample 2

	Total Tubers	Total Weight	Mean Size	Std	CoV	K
0	125	11.805	44.22	12.792	28.928	97.1

	MidBand	True Counts	True Weight	Predicted Counts	Predicted Weight
0	17.5	3	0.015700	3	0.01140
1	22.5	8	0.079400	8	0.08000
2	27.5	5	0.089700	5	0.10000
3	32.5	10	0.294200	11	0.39837
4	37.5	16	0.725900	16	0.83205
5	42.5	28	1.902300	26	1.77608
6	47.5	21	1.976700	23	1.75832
7	52.5	7	0.881700	9	1.20000
8	57.5	13	2.106500	7	1.05000
9	62.5	6	1.413300	9	1.51030
10	67.5	4	1.042798	5	1.16890
11	72.5	4	1.277300	1	0.25180
12	77.5	0	0.000000	2	0.50360

1.4.5 Trial Guard Row1

	Total Tubers	Total Weight	Mean Size	Std	CoV	K
0	99	8.853	43.49	10.968	25.22	97.25

	MidBand	True Counts	True Weight	Predicted Counts	Predicted Weight
0	17.5	6	0.0302	7	0.03280
1	27.5	5	0.0867	6	0.11000
2	32.5	3	0.0938	5	0.16959
3	37.5	10	0.4751	11	0.59064
4	42.5	19	1.2051	24	1.92124
5	47.5	23	2.0877	19	2.14144
6	52.5	19	2.2971	16	2.20841
7	57.5	8	1.3171	10	1.51652
8	62.5	5	0.9776	2	0.32340
9	67.5	1	0.2826	1	0.23000

1.4.6 Trial Guard Row2

	Total Tubers	Total Weight	Mean Size	Std	CoV	K
0	139	8.53	39.679	8.561	21.576	100.6

	MidBand	True Counts	True Weight	Predicted Counts	Predicted Weight
0	17.5	5	0.0209	6	0.02900
1	22.5	7	0.0706	6	0.06000
2	27.5	5	0.0984	4	0.08000
3	32.5	8	0.2267	13	0.37904
4	37.5	33	1.4903	40	1.55698
5	42.5	31	1.8760	30	2.32668
6	47.5	37	3.1758	31	3.02638
7	52.5	10	1.1051	8	0.83750
8	57.5	3	0.4664	2	0.35500

1.4.7 Trial Guard Row3

	Total Tubers	Total Weight	Mean Size	Std	CoV	K
0	123	6.176	36.687	8.024	21.872	99.44

	MidBand	True Counts	True Weight	Predicted Counts	Predicted Weight
0	17.5	4	0.012500	7	0.08187
1	22.5	7	0.071500	4	0.04000
2	27.5	6	0.107000	7	0.13000
3	32.5	18	0.541100	27	1.04665
4	37.5	40	1.773099	40	2.15890
5	42.5	31	1.981480	19	1.28940
6	47.5	13	1.164300	16	1.47796
7	52.5	4	0.525300	2	0.20040
8	57.5	0	0.000000	1	0.10020
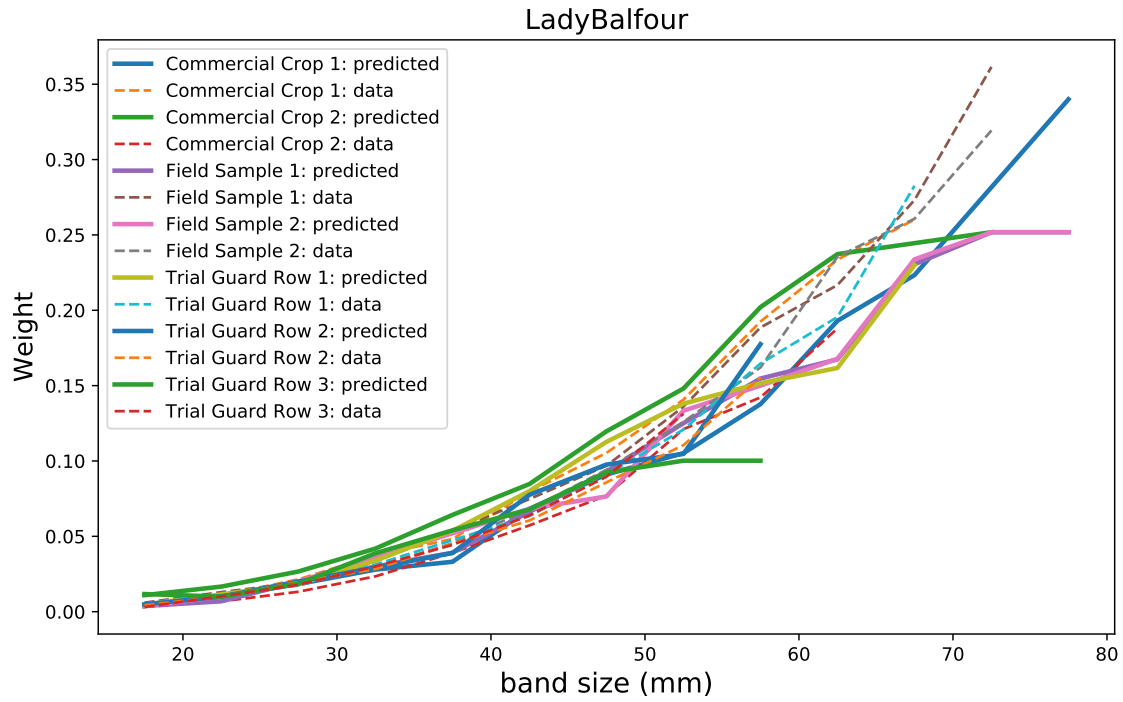
Figure 4: Tuber size vs weight plots

1.5 Jelly

1.5.1 Franklin

	Total Tubers	Total Weight	Mean Size	Std	CoV	K
0	222	31.784	54.527	10.053	18.437	104.23

	MidBand	True Counts	True Weight	Predicted Counts	Predicted Weight
0	27.5	0	0.000000	1	0.02000
1	32.5	9	0.243200	7	0.14000
2	37.5	9	0.350800	10	0.40000
3	42.5	13	0.795000	14	0.87332
4	47.5	28	2.349600	40	3.51660
5	52.5	60	6.752700	47	5.16332
6	57.5	51	8.287299	35	4.55000
7	62.5	33	7.003000	37	6.33000
8	67.5	11	2.961200	18	3.77000
9	72.5	6	2.123900	9	2.49835
10	77.5	1	0.416600	2	0.66000
11	82.5	1	0.501100	2	0.65167

1.5.2 Somerlayton

	Total Tubers	Total Weight	Mean Size	Std	CoV	K
0	191	16.781	46.139	10.865	23.548	103.79

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	MidBand	True Counts	True Weight	Predicted Counts	Predicted Weight
0	17.5	7	0.027500	7	0.0280
1	22.5	7	0.065900	5	0.0500
2	27.5	6	0.097800	7	0.0825
3	32.5	6	0.148300	9	0.2070
4	37.5	15	0.604400	15	0.6285
5	42.5	28	1.699599	29	1.8295
6	47.5	43	3.518200	39	2.9100
7	52.5	38	4.377819	44	4.5500
8	57.5	28	3.895100	25	3.0100
9	62.5	12	2.108100	9	1.1700
10	67.5	1	0.238500	2	0.3700

1.5.3 RHP

	Total Tubers	Total Weight	Mean Size	Std	CoV	K
0	236	12.525	39.258	9.632	24.535	104.47

	MidBand	True Counts	True Weight	Predicted Counts	Predicted Weight
0	17.5	13	0.062800	13	0.0580
1	22.5	10	0.088400	8	0.0825
2	27.5	17	0.248100	20	0.2865
3	32.5	31	0.799800	28	0.7075
4	37.5	44	1.749800	43	1.6900
5	42.5	60	3.565199	55	3.4150
6	47.5	39	3.367500	41	3.2600
7	52.5	21	2.436599	24	2.2650
8	57.5	1	0.206600	2	0.2000
9	62.5	0	0.000000	2	0.2600

1.5.4 Irby Hall Nort

	Total Tubers	Total Weight	Mean Size	Std	CoV	K
0	310	15.561	38.915	8.872	22.798	105.49

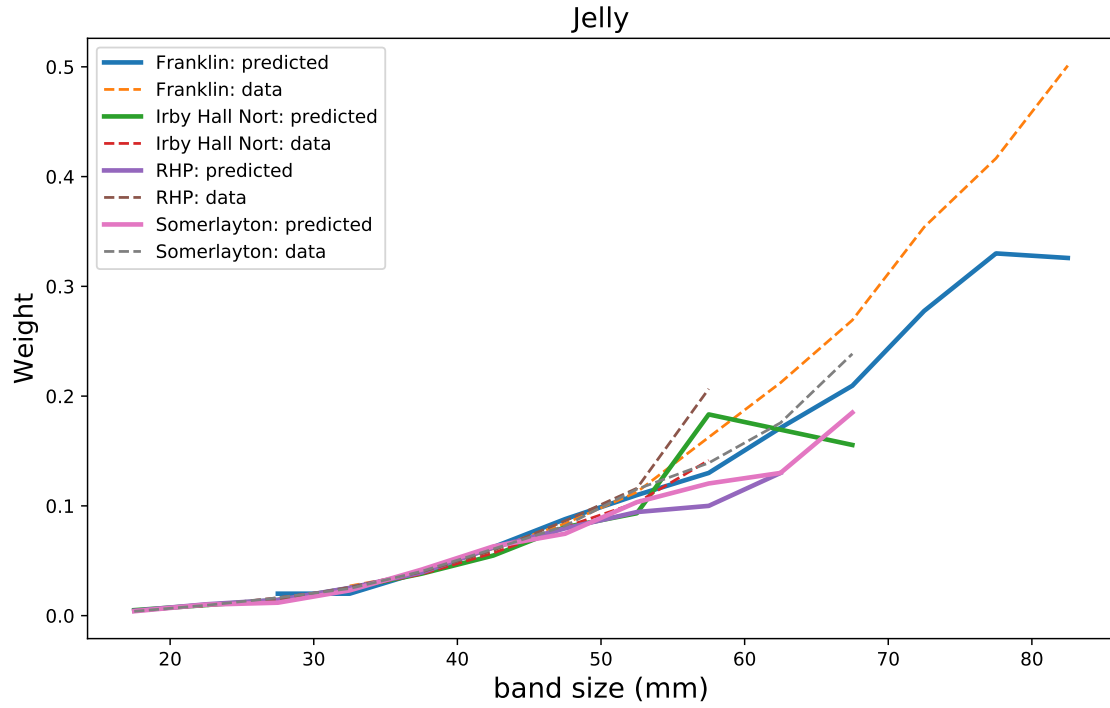|	MidBand	True Counts	True Weight	Predicted Counts	Predicted Weight
0	17.5	9	0.042100	8	0.04000
1	22.5	17	0.154800	14	0.13500
2	27.5	23	0.373300	24	0.34161
3	32.5	46	1.136000	55	1.37498
4	37.5	57	2.151600	61	2.32910
5	42.5	79	4.507899	72	3.94204
6	47.5	51	4.120500	47	3.78928
7	52.5	23	2.367600	23	2.14574
8	57.5	5	0.707699	6	1.10000
9	67.5	0	0.000000	1	0.15550

Figure 5: Tuber size vs weight plots

1.6 Soraya

1.6.1 field

	MidBand	True Counts	True Weight	Predicted Counts	Predicted Weight
0	17.5	9	0.0394	0	0.0000
1	22.5	11	0.0955	13	0.0650
2	27.5	20	0.3030	36	0.4193
3	32.5	40	0.9934	53	0.7548
4	37.5	86	3.1418	102	2.4044
5	42.5	112	5.9827	89	2.6187
6	47.5	46	3.4685	35	2.0729
7	52.5	4	0.4171	3	0.2447
8	57.5	4	0.4783	1	0.1167

1.6.2 F1

	Total Tubers	Total Weight	Mean Size	Std	CoV	K
0	332	14.92	37.62	6.642	17.656	105.81

	MidBand	True Counts	True Weight	Predicted Counts	Predicted Weight
0	17.5	9	0.0394	0	0.0000
1	22.5	11	0.0955	13	0.0650
2	27.5	20	0.3030	36	0.4193
3	32.5	40	0.9934	53	0.7548
4	37.5	86	3.1418	102	2.4044
5	42.5	112	5.9827	89	2.6187
6	47.5	46	3.4685	35	2.0729
7	52.5	4	0.4171	3	0.2447
8	57.5	4	0.4783	1	0.1167

1.6.3 Somerlayton

	Total Tubers	Total Weight	Mean Size	Std	CoV	K
0	193	16.329	46.231	10.171	22.0	105.31

	MidBand	True Counts	True Weight	Predicted Counts	Predicted Weight
0	17.5	2	0.0098	3	0.0190
1	22.5	4	0.0257	6	0.0600
2	27.5	7	0.0925	7	0.1259
3	32.5	4	0.0743	7	0.2375
4	37.5	22	0.7489	14	0.5477
5	42.5	40	2.2147	52	3.1435
6	47.5	39	3.0565	30	2.6989
7	52.5	30	3.2879	34	3.9214
8	57.5	36	5.0337	29	3.7400
9	62.5	8	1.5361	8	1.1440
10	67.5	1	0.2484	3	0.5660

1.6.4 Year1 trial field

	Total Tubers	Total Weight	Mean Size	Std	CoV	K
0	136	9.914	45.11	6.992	15.5	107.99

	MidBand	True Counts	True Weight	Predicted Counts	Predicted Weight
0	27.5	0	0.0000	2	0.0720
1	32.5	6	0.1433	9	0.2836
2	37.5	21	0.6836	16	0.5904
3	42.5	39	2.2328	44	2.6362
4	47.5	37	2.8083	33	2.6694
5	52.5	21	2.3387	19	2.2378
6	57.5	11	1.5317	12	1.5840
7	62.5	1	0.1760	1	0.1954
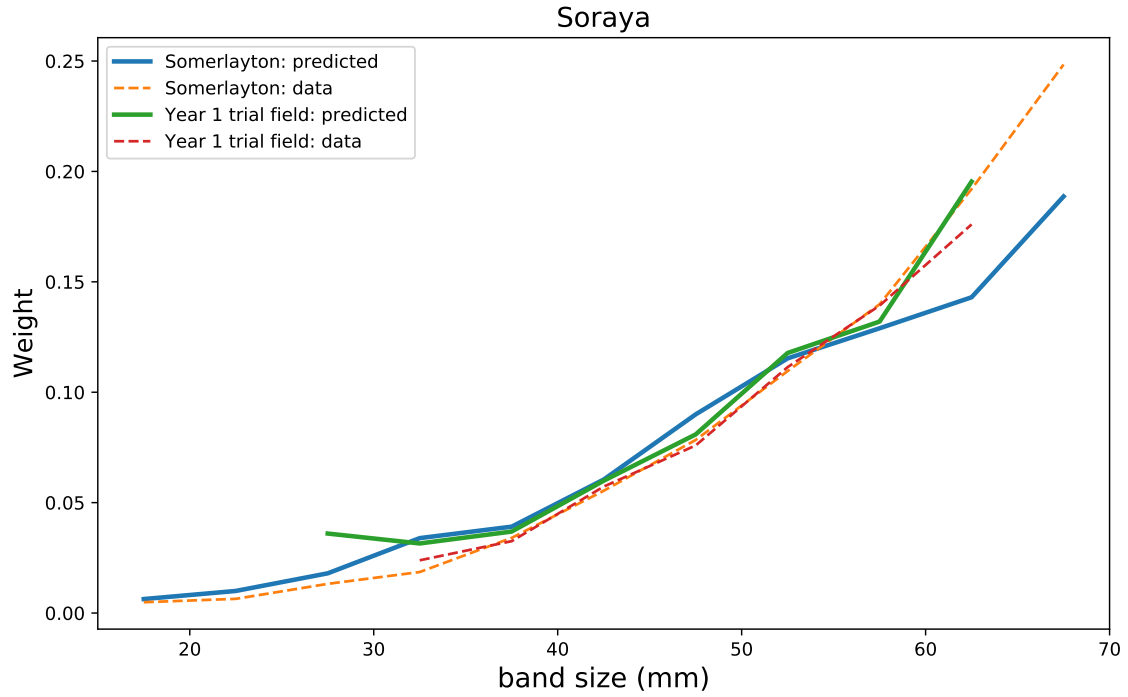
Figure 6: Tuber size vs weight plots

1.7 Venezia

1.7.1 Chanters Hole

	Total Tubers	Total Weight	Mean Size	Std	CoV	K
0	373	10.623	30.516	6.505	21.317	99.93

	MidBand	True Counts	True Weight	Predicted Counts	Predicted Weight
0	17.5	23	0.113700	23	0.13750
1	22.5	61	0.699100	52	0.63110
2	27.5	99	2.041200	96	1.40655
3	32.5	112	3.610597	107	2.45691
4	37.5	63	3.064200	72	0.89556
5	42.5	15	1.094598	20	0.46606
6	47.5	0	0.000000	3	0.13350

1.7.2 Hanger Blackdyke

	Total Tubers	Total Weight	Mean Size	Std	CoV	K
0	263	9.34	33.717	4.387	13.011	102.58

	MidBand	True Counts	True Weight	Predicted Counts	Predicted Weight
0	17.5	1	0.0053	1	0.00450
1	22.5	9	0.1270	3	0.02760
2	27.5	44	0.9650	41	0.61780
3	32.5	124	4.0152	123	3.75870
4	37.5	71	3.3596	78	3.57178
5	42.5	14	0.8682	15	0.83456
6	47.5	0	0.0000	2	0.12114

1.7.3 HS2

	Total Tubers	Total Weight	Mean Size	Std	CoV	K
0	119	4.308	34.055	3.352	9.843	102.94

	MidBand	True Counts	True Weight	Predicted Counts	Predicted Weight
0	27.5	0	0.0000	11	0.32648
1	32.5	72	2.1728	63	1.94278
2	37.5	43	1.9045	42	1.67454
3	42.5	4	0.2307	3	0.16274

1.7.4 Lovers Pightle

	Total Tubers	Total Weight	Mean Size	Std	CoV	K
0	215	2.331	22.523	3.843	17.063	101.76

	MidBand	True Counts	True Weight	Predicted Counts	Predicted Weight
0	17.5	67	0.3700	59	0.31000
1	22.5	110	1.2355	100	1.18418
2	27.5	38	0.7250	52	0.79688
3	32.5	0	0.0000	4	0.06836

1.7.5 NSB Trial1

	Total Tubers	Total Weight	Mean Size	Std	CoV	K
0	591	14.051	28.583	5.753	20.127	99.4

	MidBand	True Counts	True Weight	Predicted Counts	Predicted Weight
0	17.5	42	0.197400	53	0.33390
1	22.5	88	0.934580	95	1.17910
2	27.5	189	3.590730	199	3.95530
3	32.5	190	5.728239	161	4.07021
4	37.5	82	3.599800	81	2.74239
5	42.5	0	0.000000	2	0.07154

1.7.6 NSB Wortley

	Total Tubers	Total Weight	Mean Size	Std	CoV	K
0	183	3.235	26.407	3.569	13.515	101.37

	MidBand	True Counts	True Weight	Predicted Counts	Predicted Weight
0	17.5	9	0.0421	12	0.0759
1	22.5	21	0.2079	35	0.4693
2	27.5	153	2.9854	117	1.9539
3	32.5	0	0.0000	19	0.3173

1.7.7 NSB Turn Pike

	Total Tubers	Total Weight	Mean Size	Std	CoV	K
0	303	8.717	29.596	7.834	26.47	96.59

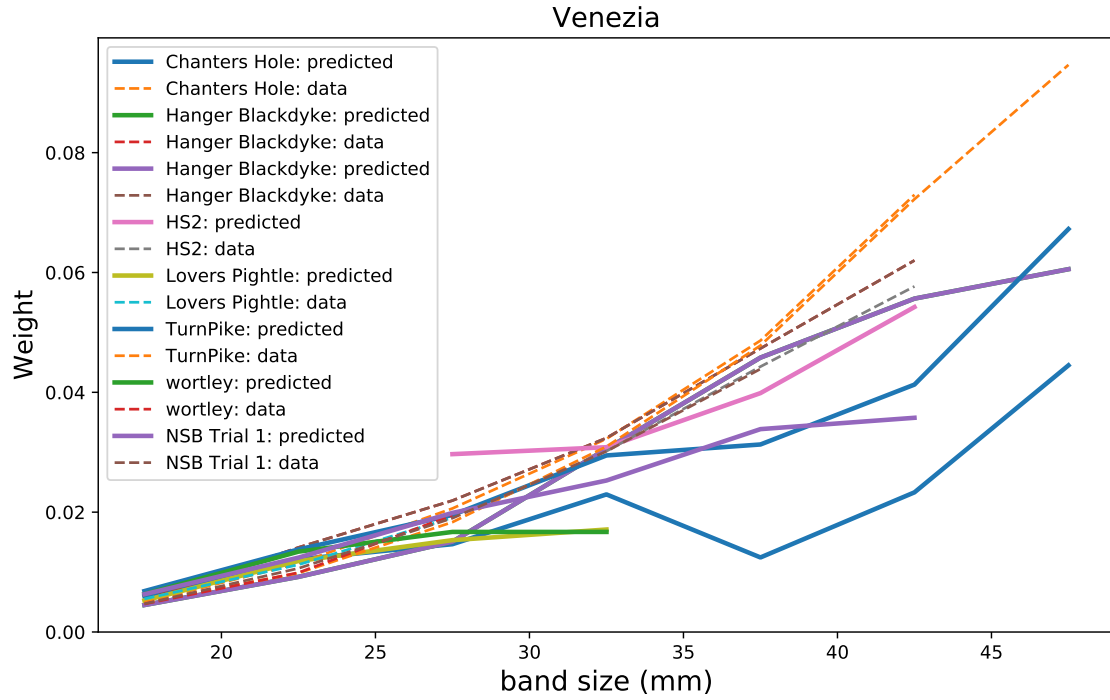|	MidBand	True Counts	True Weight	Predicted Counts	Predicted Weight
0	17.5	28	0.1385	37	0.2525
1	22.5	59	0.5803	61	0.8405
2	27.5	72	1.3199	65	1.2696
3	32.5	54	1.6711	55	1.6205
4	37.5	63	3.0119	52	1.6273
5	42.5	25	1.8060	29	1.1974
6	47.5	2	0.1893	4	0.2690

Figure 7: Tuber size vs weight plots

2 K-Nearest Neighbors : Trained with CAI-Rawdata-27.07.18.xlsx

2.1 MariPiper

2.1.1 Duffy

	Total Tubers	Total Weight	Mean Size	Std	CoV	K
0	317	9.143	31.869	7.328	22.994	103.92

	MidBand	True Counts	True Weight	Predicted Counts	Predicted Weight
0	17.5	23	0.0787	20	0.0600
1	22.5	20	0.1721	45	0.4628
2	27.5	56	0.8653	52	0.6238
3	32.5	90	2.3360	81	1.7064
4	37.5	84	3.1307	87	2.2982
5	42.5	36	1.8976	23	0.8870
6	47.5	6	0.4724	7	0.3572
7	52.5	2	0.1903	2	0.1311
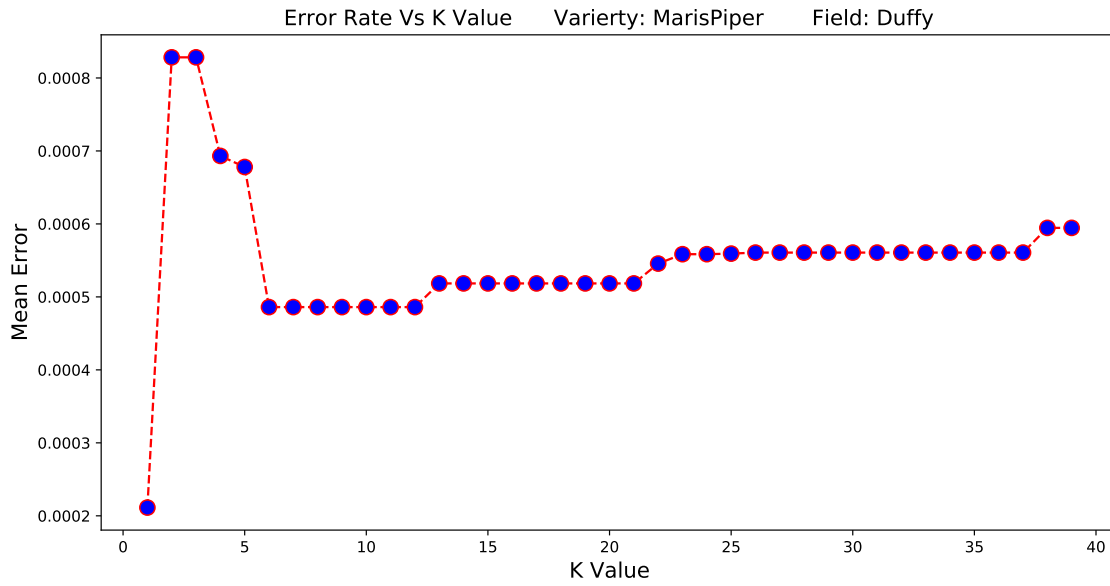
Figure 8: Tuber size vs weight plots

2.1.2 M12

	Total Tubers	Total Weight	Mean Size	Std	CoV	K
0	285	20.717	42.711	11.04	25.848	102.34

	MidBand	True Counts	True Weight	Predicted Counts	Predicted Weight
0	17.5	7	0.0301	5	0.0189
1	22.5	16	0.1292	24	0.1853
2	27.5	18	0.2854	20	0.2669
3	32.5	14	0.3109	19	0.4977
4	37.5	23	0.8663	30	1.0005
5	42.5	59	3.2002	50	2.1161
6	47.5	65	5.3569	49	2.7979
7	52.5	46	5.0693	59	4.5949
8	57.5	30	4.2494	22	2.5601
9	62.5	7	1.2189	7	0.9111
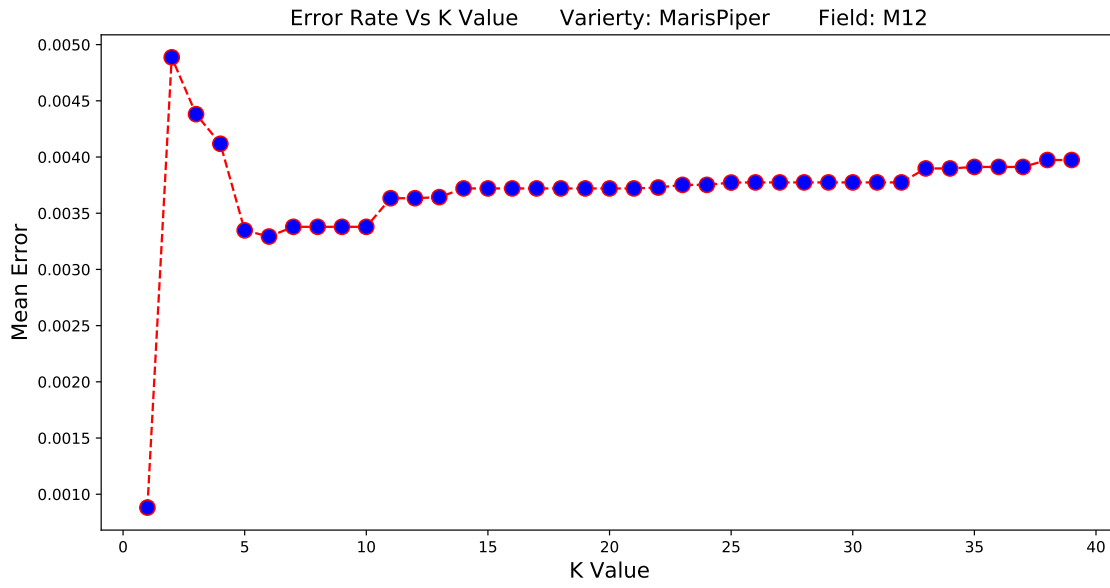
Figure 9: Tuber size vs weight plots

2.1.3 R21

	Total Tubers	Total Weight	Mean Size	Std	CoV	K
0	274	7.606	31.679	6.846	21.611	104.63

	MidBand	True Counts	True Weight	Predicted Counts	Predicted Weight
0	17.5	12	0.0587	6	0.0180
1	22.5	31	0.2988	45	0.3549
2	27.5	66	1.0794	63	0.6713
3	32.5	47	1.2737	77	1.7100
4	37.5	83	2.8706	46	1.1859
5	42.5	35	2.0248	31	1.0914
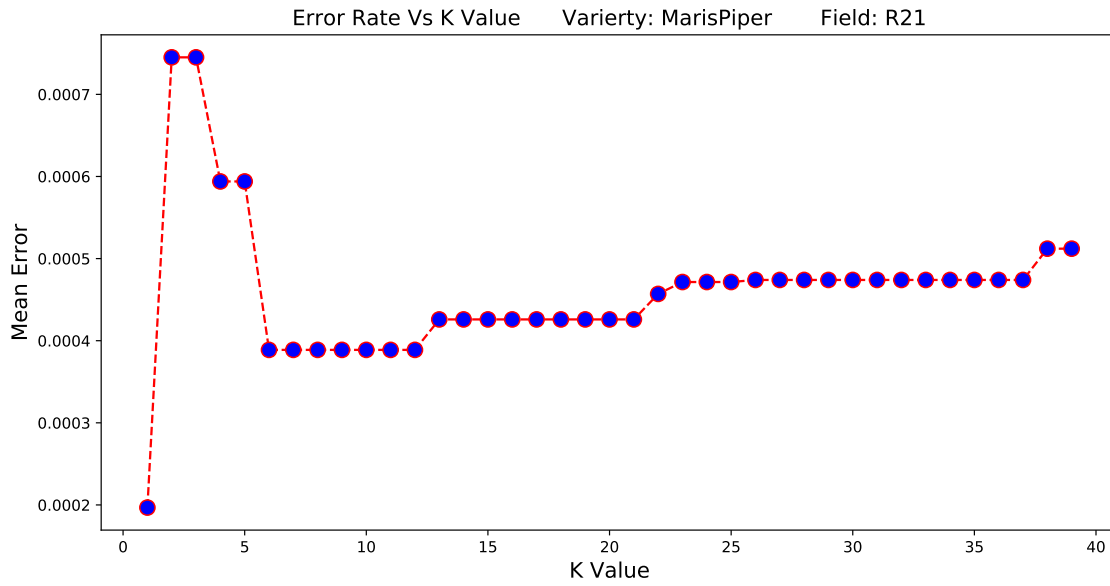
Figure 10: Tuber size vs weight plots

2.2 Jelly

2.2.1 Irby Hall Nort

	Total Tubers	Total Weight	Mean Size	Std	CoV	K
0	311	15.795	38.143	8.538	22.384	103.0

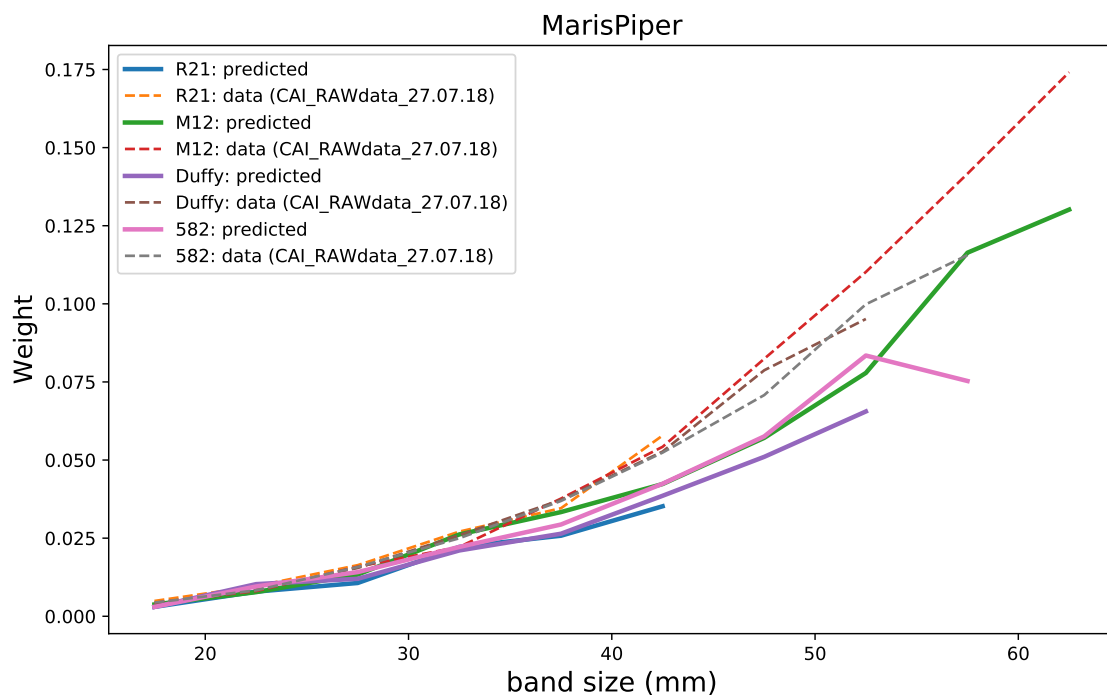|	MidBand	True Counts	True Weight	Predicted Counts	Predicted Weight
0	17.5	9	0.0421	7	0.0257
1	22.5	17	0.1548	19	0.0971
2	27.5	23	0.3733	29	0.2800
3	32.5	46	1.1360	43	0.5009
4	37.5	57	2.1516	74	1.6611
5	42.5	79	4.5079	77	3.1022
6	47.5	51	4.1205	44	2.7489
7	52.5	23	2.3676	13	1.0746
8	57.5	5	0.7077	4	0.4497
9	62.5	1	0.2340	0	0.0000

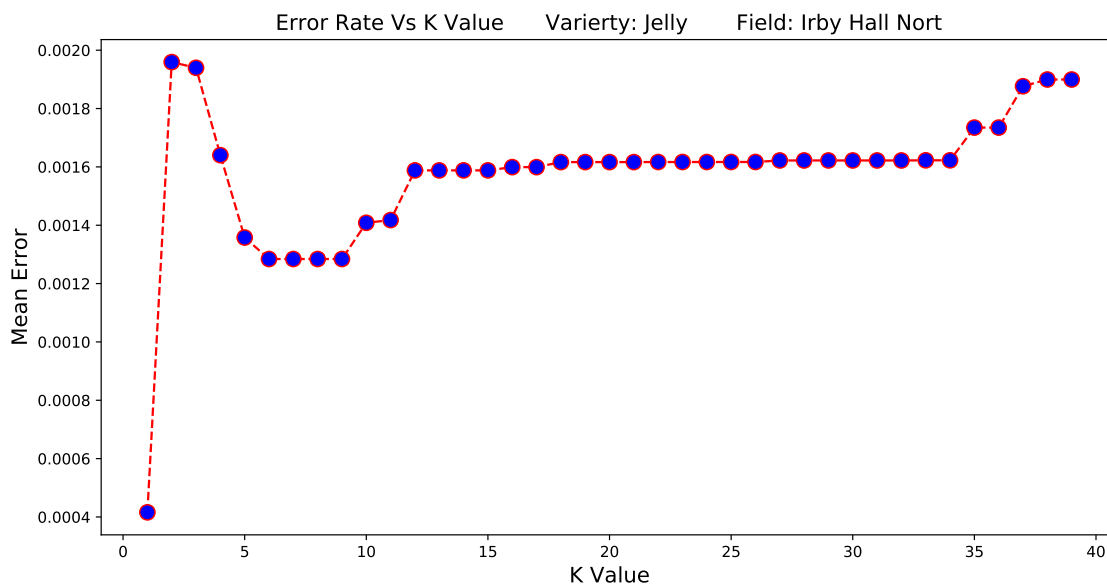Figure 11: Tuber size vs weight plots

Figure 12: Tuber size vs weight plots
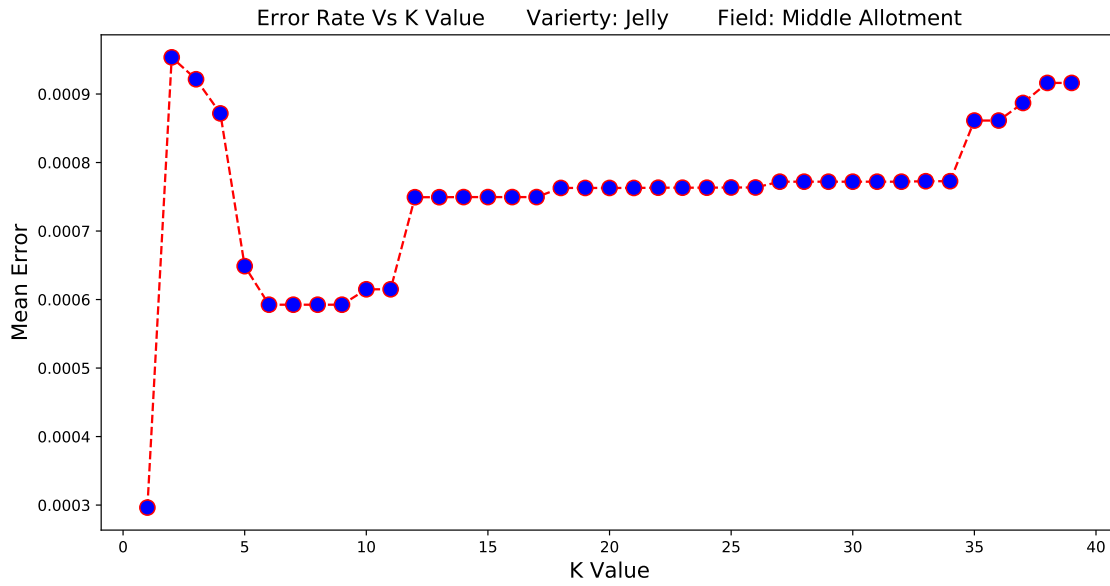
Figure 13: Tuber size vs weight plots

2.2.2 Middle Allotment

	Total Tubers	Total Weight	Mean Size	Std	CoV	K
0	224	8.587	34.866	8.529	24.462	103.4

	MidBand	True Counts	True Weight	Predicted Counts	Predicted Weight
0	17.5	15	0.0675	15	0.0577
1	22.5	17	0.1549	16	0.0773
2	27.5	27	0.4077	34	0.3290
3	32.5	42	1.0705	36	0.4095
4	37.5	47	1.8359	57	1.2456
5	42.5	44	2.4455	42	1.5511
6	47.5	29	2.3248	20	1.2056
7	52.5	3	0.2805	4	0.2400
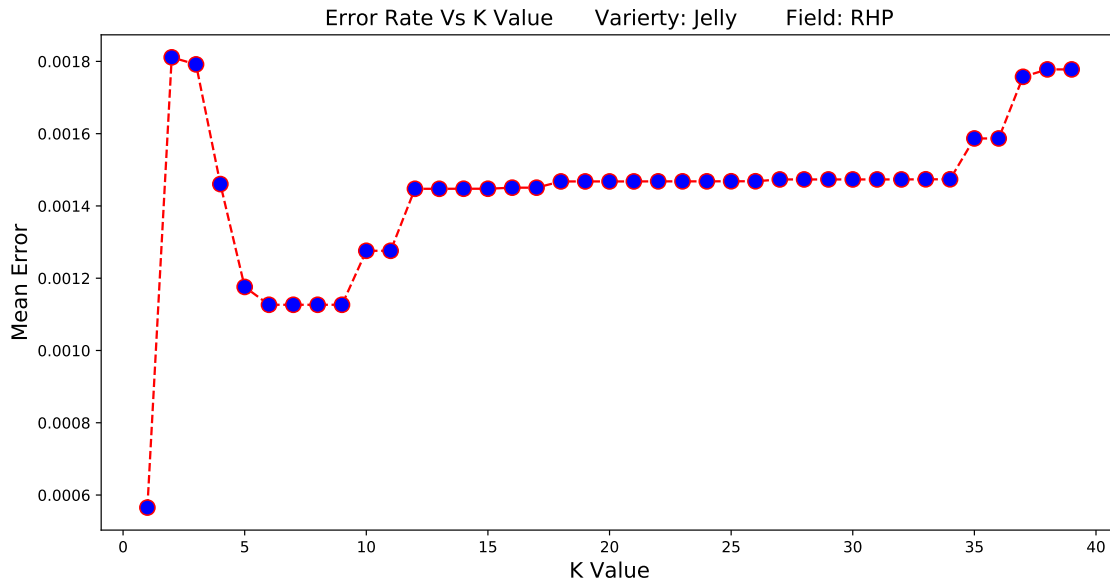
Figure 14: Tuber size vs weight plots

2.2.3 RHP

	Total Tubers	Total Weight	Mean Size	Std	CoV	K
0	236	12.525	38.453	9.558	24.856	102.32

	MidBand	True Counts	True Weight	Predicted Counts	Predicted Weight
0	17.5	13	0.0628	13	0.0503
1	22.5	10	0.0884	12	0.0730
2	27.5	17	0.2481	21	0.2006
3	32.5	31	0.7998	27	0.3498
4	37.5	44	1.7498	49	1.0311
5	42.5	60	3.5652	52	1.8156
6	47.5	39	3.3675	41	2.3344
7	52.5	21	2.4366	18	1.3467
8	57.5	1	0.2066	1	0.0811
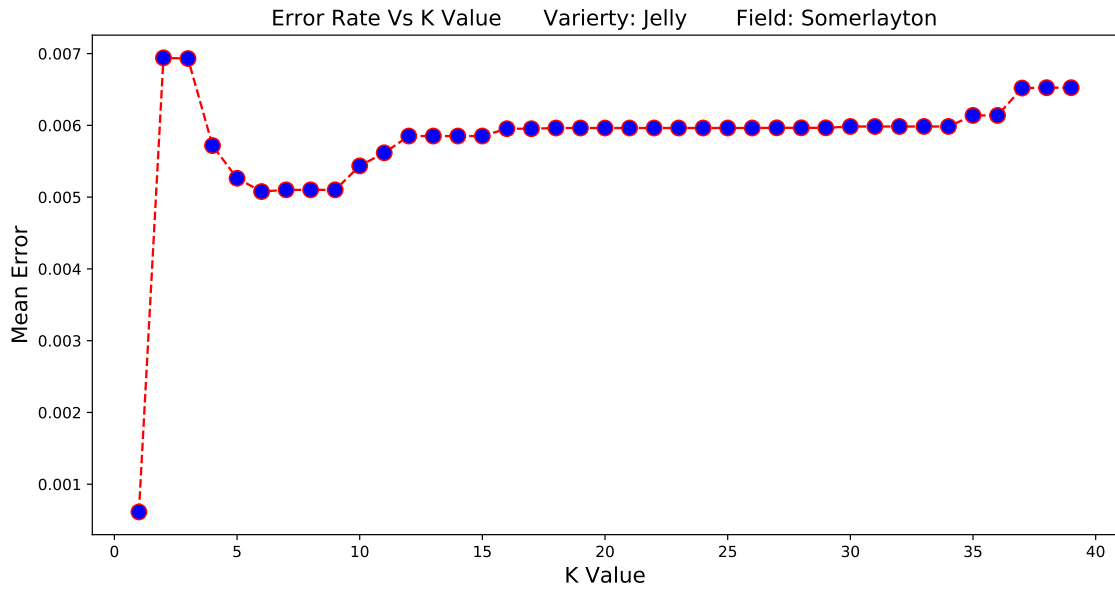
Figure 15: Tuber size vs weight plots

2.2.4   Somerlayton

	Total Tubers	Total Weight	Mean Size	Std	CoV	K
0	191	16.781	45.589	11.146	24.449	102.55

	MidBand	True Counts	True Weight	Predicted Counts	Predicted Weight
0	17.5	7	0.0275	8	0.0307
1	22.5	7	0.0659	7	0.0445
2	27.5	6	0.0978	6	0.0540
3	32.5	6	0.1483	7	0.0900
4	37.5	15	0.6044	19	0.4578
5	42.5	28	1.6996	29	1.2089
6	47.5	43	3.5182	42	2.6784
7	52.5	38	4.3778	37	3.3965
8	57.5	28	3.8951	25	2.8732
9	62.5	12	2.1081	9	1.2686
10	67.5	1	0.2385	2	0.3512
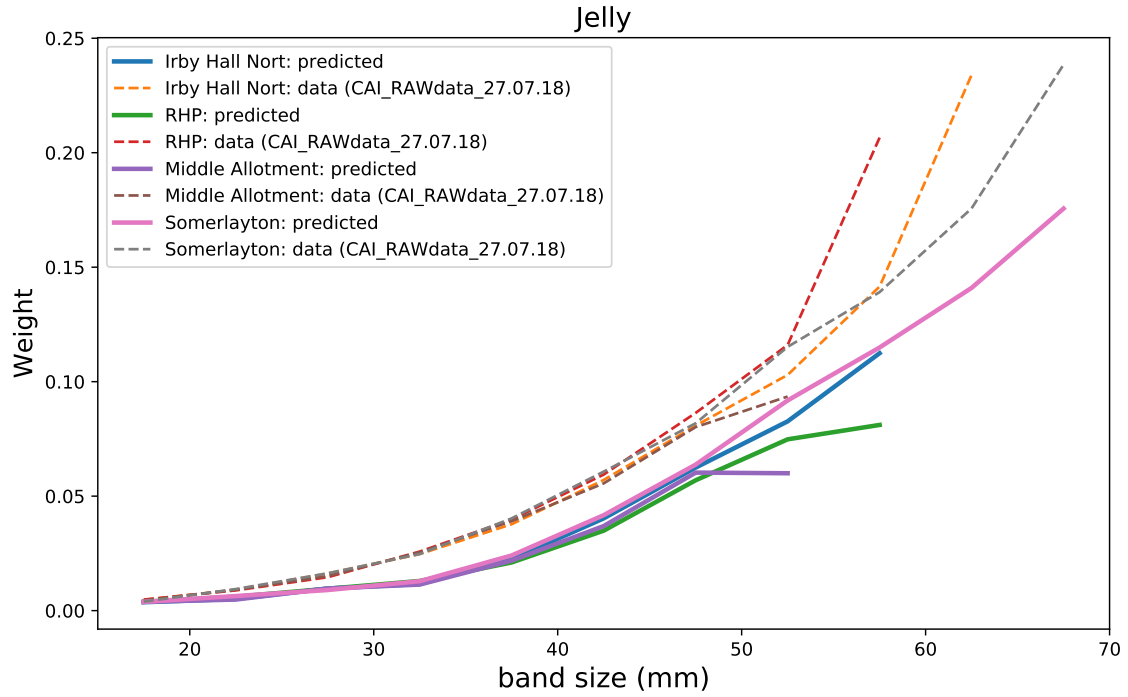
Figure 16: Tuber size vs weight plots

2.3 Soraya

2.3.1 F1

	Total Tubers	Total Weight	Mean Size	Std	CoV	K
0	332	14.92	37.62	6.642	17.656	105.81

	MidBand	True Counts	True Weight	Predicted Counts	Predicted Weight
0	17.5	9	0.0394	0	0.0000
1	22.5	11	0.0955	13	0.0650
2	27.5	20	0.3030	36	0.4193
3	32.5	40	0.9934	53	0.7548
4	37.5	86	3.1418	102	2.4044
5	42.5	112	5.9827	89	2.6187
6	47.5	46	3.4685	35	2.0729
7	52.5	4	0.4171	3	0.2447
8	57.5	4	0.4783	1	0.1167

Figure 17: Tuber size vs weight plots

2.3.2 Somerlayton

	Total Tubers	Total Weight	Mean Size	Std	CoV	K
0	193	16.329	45.298	9.641	21.284	103.18

	MidBand	True Counts	True Weight	Predicted Counts	Predicted Weight
0	17.5	2	0.0098	0	0.0000
1	22.5	4	0.0257	6	0.0400
2	27.5	7	0.0925	11	0.1273
3	32.5	4	0.0743	7	0.1266
4	37.5	22	0.7489	26	0.6432
5	42.5	40	2.2147	44	1.5979
6	47.5	39	3.0565	35	2.0869
7	52.5	30	3.2879	33	2.8293
8	57.5	36	5.0337	23	2.7653
9	62.5	8	1.5361	5	0.7179
10	67.5	1	0.2484	3	0.5374
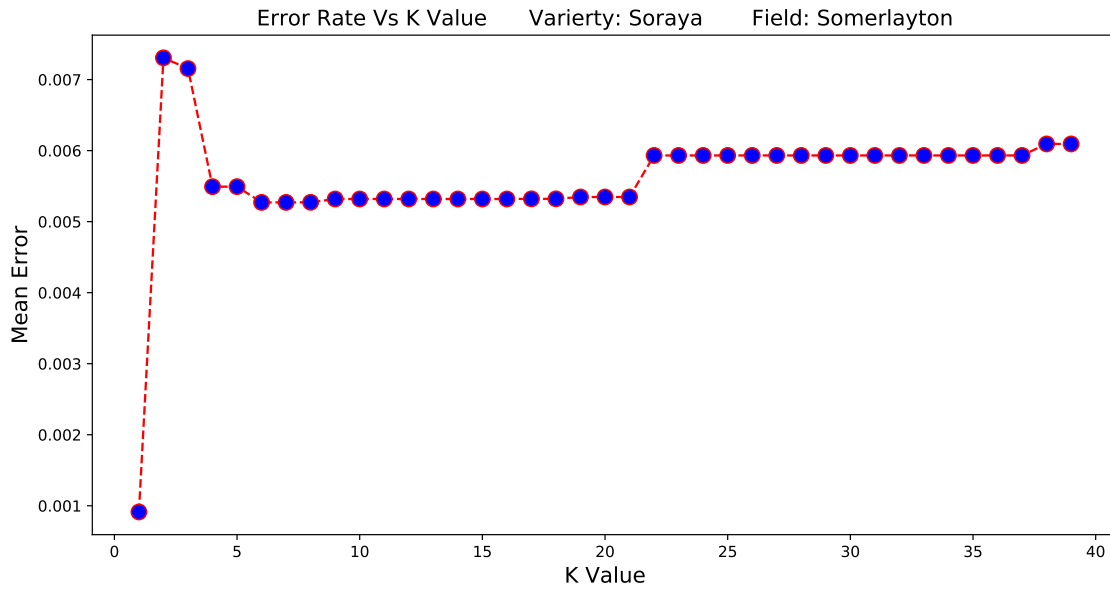
Figure 18: Tuber size vs weight plots

2.3.3 Yr 1 variety trial Field

	Total Tubers	Total Weight	Mean Size	Std	CoV	K
0	165	15.48	46.955	10.031	21.363	103.34

	MidBand	True Counts	True Weight	Predicted Counts	Predicted Weight
0	17.5	11	0.0408	0	0.0000
1	22.5	3	0.0239	7	0.0350
2	27.5	2	0.0289	10	0.0775
3	32.5	3	0.0760	5	0.0991
4	37.5	13	0.4721	11	0.2399
5	42.5	16	0.9534	19	0.6116
6	47.5	37	3.1252	44	2.6424
7	52.5	46	5.2695	35	2.3713
8	57.5	22	3.2834	25	2.8855
9	62.5	11	1.9823	8	1.2474
10	67.5	1	0.2243	1	0.2143
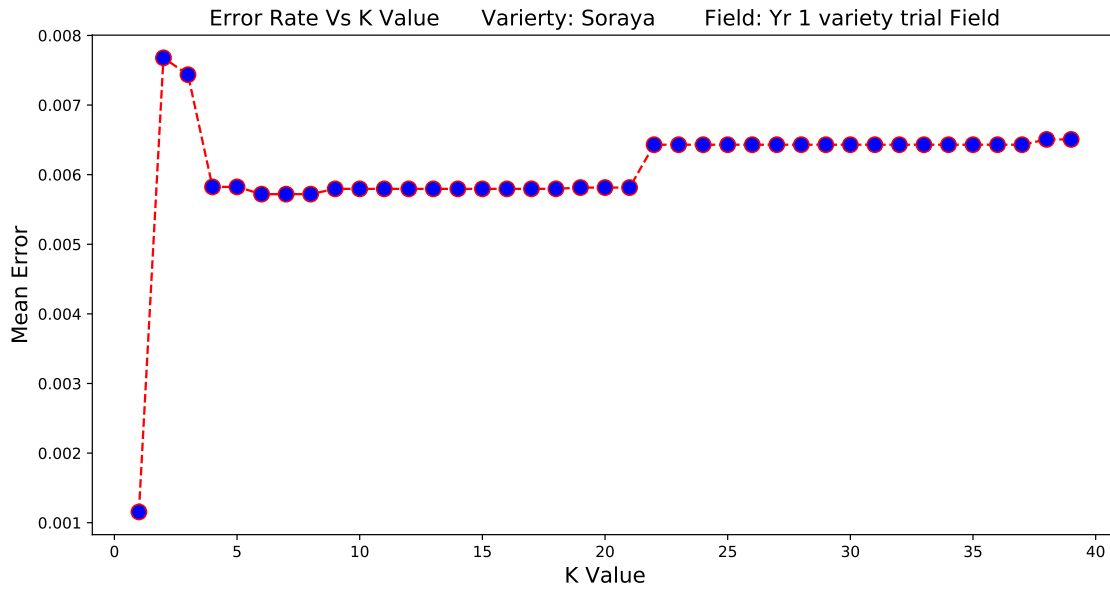
Figure 19: Tuber size vs weight plots

3 GMM Soft Pseudo Counts : Trained with CAI-Rawdata-27.07.18.xlsx

3.1 Maris Piper

3.1.1 R21

	MidBand	True Count	Predicted Count	True Weight	Predicted Weight
0	17.5	12	2	0.0587	0.008685
1	22.5	31	9	0.2988	0.165103
2	27.5	66	60	1.0794	1.027816
3	32.5	47	72	1.2737	1.835751
4	37.5	83	67	2.8706	2.120934
5	42.5	35	39	2.0248	1.428808
6	47.5	0	17	0.0000	0.694030
7	52.5	0	6	0.0000	0.235762
8	57.5	0	1	0.0000	0.064328
9	62.5	0	1	0.0000	0.024782
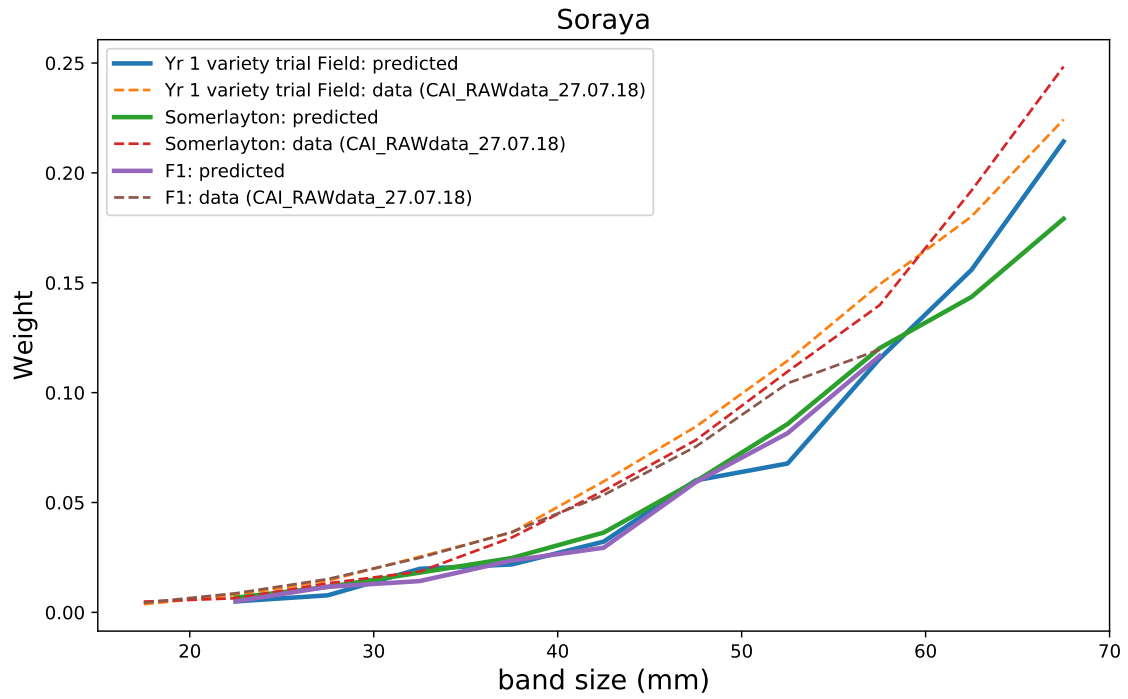
Figure 20: Tuber size vs weight plots

3.1.2 M12

	MidBand	True Count	Predicted Count	True Weight	Predicted Weight
0	17.5	7	2	0.0301	0.007323
1	22.5	16	3	0.1292	0.058412
2	27.5	18	20	0.2854	0.295557
3	32.5	14	32	0.3109	1.037380
4	37.5	23	49	0.8663	2.433125
5	42.5	59	56	3.2002	3.910545
6	47.5	65	53	5.3569	4.767867
7	52.5	46	36	5.0693	3.984149
8	57.5	30	23	4.2494	2.883463
9	62.5	7	10	1.2189	1.338778

3.1.3 582

	MidBand	True Count	Predicted Count	True Weight	Predicted Weight
0	17.5	7	2	0.0307	0.007408
1	22.5	14	5	0.1161	0.111408
2	27.5	15	29	0.2368	0.537495
3	32.5	52	55	1.2990	1.791994
4	37.5	58	68	2.1406	2.860396
5	42.5	62	51	3.2481	2.630480
6	47.5	35	29	2.4778	1.771652
7	52.5	11	11	1.0984	0.758964
8	57.5	2	4	0.2312	0.299224
9	62.5	0	2	0.0000	0.109679

3.1.4 Duffy

	MidBand	True Count	Predicted Count	True Weight	Predicted Weight
0	17.5	23	6	0.0787	0.021017
1	22.5	20	10	0.1721	0.186465
2	27.5	56	58	0.8653	1.015688
3	32.5	90	85	2.3360	2.282843
4	37.5	84	80	3.1307	2.588187
5	42.5	36	47	1.8976	1.724552
6	47.5	6	21	0.4724	0.876377
7	52.5	2	7	0.1903	0.316668
8	57.5	0	2	0.0000	0.095213
9	62.5	0	0	0.0000	0.036090

3.1.5 Aggregate

	MidBand	True Count	Predicted Count	True Weight	Predicted Weight
0	17.5	49	12	0.1982	0.044434
1	22.5	81	27	0.7162	0.521389
2	27.5	155	166	2.4669	2.876556
3	32.5	203	245	5.2196	6.947968
4	37.5	248	264	9.0082	10.002642
5	42.5	192	194	10.3707	9.694386
6	47.5	106	121	8.3071	8.109927
7	52.5	59	61	6.3580	5.295543
8	57.5	32	30	4.4806	3.342228
9	62.5	7	13	1.2189	1.509330
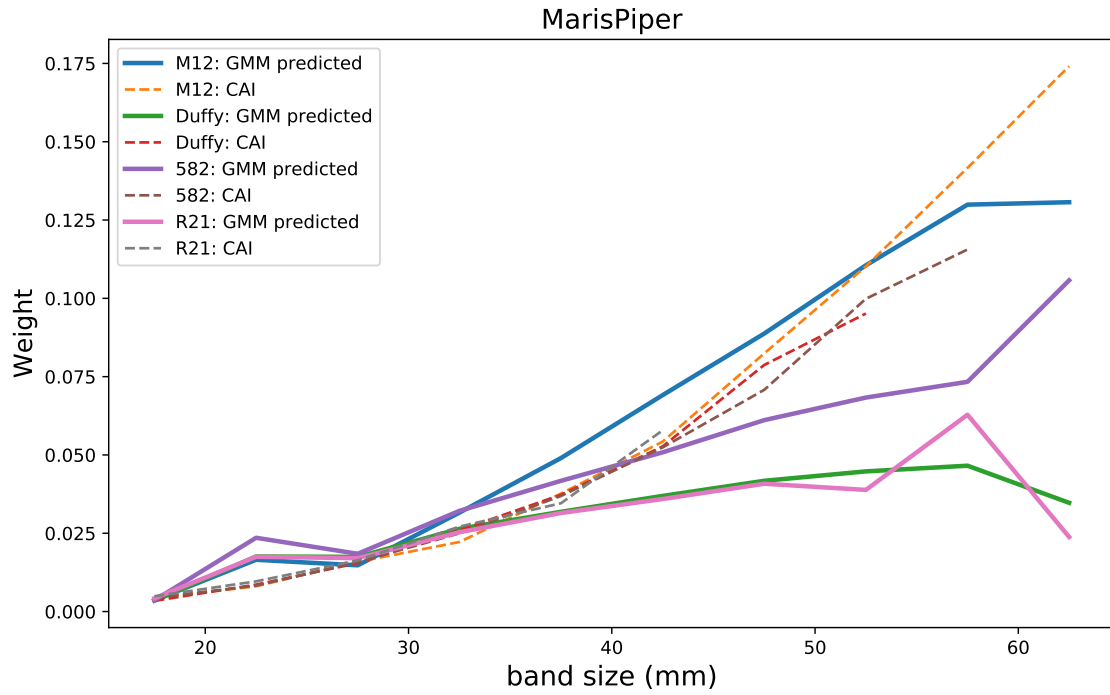
Figure 21: Tuber size vs Tuber weight plots

3.2 Soraya

3.2.1 Yr 1 variety trial Field

	MidBand	True Count	Predicted Count	True Weight	Predicted Weight
0	17.5	11	3	0.0408	0.012607
1	22.5	3	3	0.0239	0.019537
2	27.5	2	4	0.0289	0.047232
3	32.5	3	5	0.0760	0.143938
4	37.5	13	12	0.4721	0.644597
5	42.5	16	26	0.9534	2.024383
6	47.5	37	44	3.1252	4.234264
7	52.5	46	26	5.2695	2.762501
8	57.5	22	22	3.2834	2.802577
9	62.5	11	15	1.9823	2.094495
10	67.5	1	5	0.2243	0.693669

3.2.2 F1

	MidBand	True Count	Predicted Count	True Weight	Predicted Weight
0	17.5	9	5	0.0394	0.022547
1	22.5	11	7	0.0955	0.068025
2	27.5	20	17	0.3030	0.370382
3	32.5	40	36	0.9934	1.205957
4	37.5	86	60	3.1418	2.576857
5	42.5	112	71	5.9827	3.371561
6	47.5	46	77	3.4685	3.951698
7	52.5	4	32	0.4171	1.736188
8	57.5	4	16	0.4783	0.932419
9	62.5	0	8	0.0000	0.474586
10	67.5	0	4	0.0000	0.209481

3.2.3 Somerlayton

	MidBand	True Count	Predicted Count	True Weight	Predicted Weight
0	17.5	2	2	0.0098	0.010511
1	22.5	4	3	0.0257	0.024438
2	27.5	7	5	0.0925	0.081783
3	32.5	4	9	0.0743	0.297623
4	37.5	22	20	0.7489	1.044870
5	42.5	40	34	2.2147	2.361770
6	47.5	39	51	3.0565	4.380367
7	52.5	30	28	3.2879	2.693550
8	57.5	36	22	5.0337	2.605593
9	62.5	8	15	1.5361	2.078611
10	67.5	1	6	0.2484	0.749385

3.2.4 Aggregate

	MidBand	True Count	Predicted Count	True Weight	Predicted Weight
0	17.5	22	9	0.0900	0.045665
1	22.5	18	13	0.1451	0.112000
2	27.5	29	25	0.4244	0.499397
3	32.5	47	50	1.1437	1.647517
4	37.5	121	91	4.3628	4.266324
5	42.5	168	130	9.1508	7.757714
6	47.5	122	172	9.6502	12.566328
7	52.5	80	85	8.9745	7.192238
8	57.5	62	60	8.7954	6.340589
9	62.5	19	39	3.5184	4.647692
10	67.5	2	15	0.4727	1.652536
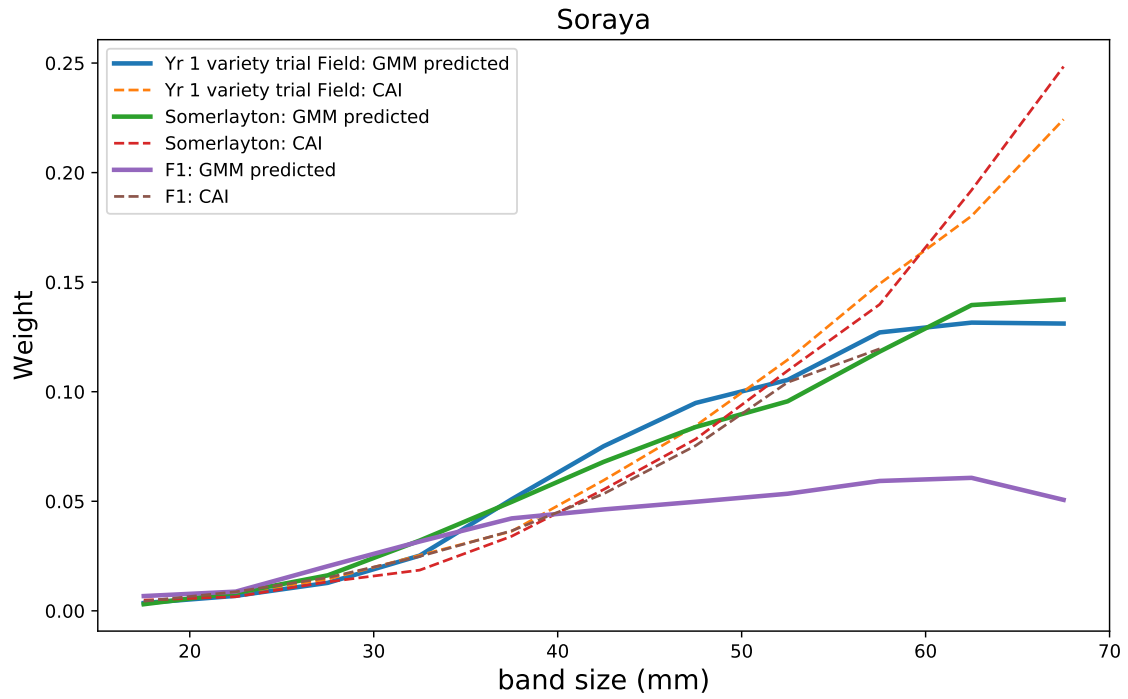
Figure 22: Tuber size vs Tuber weight plots

3.3 Jelly

3.3.1 Irby Hall Nort

	MidBand	True Count	Predicted Count	True Weight	Predicted Weight
0	17.5	9	4	0.0421	0.026275
1	22.5	17	9	0.1548	0.099965
2	27.5	23	22	0.3733	0.375410
3	32.5	46	38	1.1360	1.082181
4	37.5	57	63	2.1516	2.708003
5	42.5	79	70	4.5079	3.950416
6	47.5	51	54	4.1205	3.544532
7	52.5	23	30	2.3676	2.147395
8	57.5	5	12	0.7077	1.065715
9	62.5	1	7	0.2340	0.595676
10	67.5	0	2	0.0000	0.199932

3.3.2 Middle Allotment

	MidBand	True Count	Predicted Count	True Weight	Predicted Weight
0	17.5	15	5	0.0675	0.032544
1	22.5	17	11	0.1549	0.112989
2	27.5	27	23	0.4077	0.356859
3	32.5	42	34	1.0705	0.892950
4	37.5	47	48	1.8359	1.883904
5	42.5	44	46	2.4455	2.250636
6	47.5	29	32	2.3248	1.645631
7	52.5	3	16	0.2805	0.867097
8	57.5	0	5	0.0000	0.330712
9	62.5	0	3	0.0000	0.166204
10	67.5	0	1	0.0000	0.047773

3.3.3 Somerlayton

	MidBand	True Count	Predicted Count	True Weight	Predicted Weight
0	17.5	7	2	0.02750	0.011141
1	22.5	7	4	0.06590	0.032422
2	27.5	6	6	0.09780	0.086793
3	32.5	6	9	0.14830	0.236768
4	37.5	15	20	0.60440	0.980722
5	42.5	28	37	1.69960	2.698224
6	47.5	43	45	3.51820	4.358331
7	52.5	38	33	4.37782	3.660041
8	57.5	28	20	3.89510	2.570104
9	62.5	12	12	2.10810	1.578366
10	67.5	1	4	0.23850	0.568308

3.3.4 RHP

	MidBand	True Count	Predicted Count	True Weight	Predicted Weight
0	17.5	13	4	0.0628	0.024289
1	22.5	10	8	0.0884	0.078109
2	27.5	17	16	0.2481	0.240913
3	32.5	31	26	0.7998	0.734786
4	37.5	44	45	1.7498	1.945700
5	42.5	60	52	3.5652	3.086464
6	47.5	39	43	3.3675	2.956377
7	52.5	21	24	2.4366	1.838680
8	57.5	1	11	0.2066	0.948377
9	62.5	0	6	0.0000	0.508654
10	67.5	0	2	0.0000	0.162451

3.3.5   Aggregate

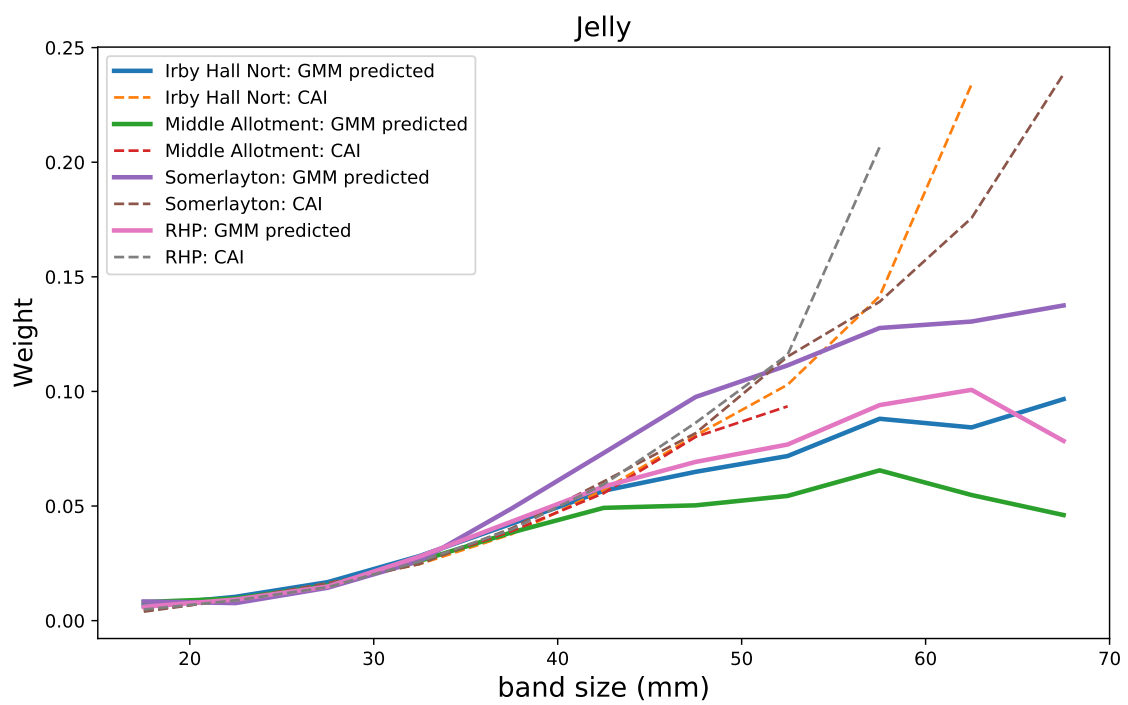|	MidBand	True Count	Predicted Count	True Weight	Predicted Weight
0	17.5	44	13	0.19990	0.094250
1	22.5	51	33	0.46400	0.323484
2	27.5	73	68	1.12690	1.059976
3	32.5	125	106	3.15460	2.946685
4	37.5	163	176	6.34170	7.518329
5	42.5	211	204	12.21820	11.985740
6	47.5	162	174	13.33100	12.504871
7	52.5	85	103	9.46252	8.513213
8	57.5	34	49	4.80940	4.914907
9	62.5	13	27	2.34210	2.848900
10	67.5	1	9	0.23850	0.978464

Figure 23: Tuber size vs Tuber weight plots