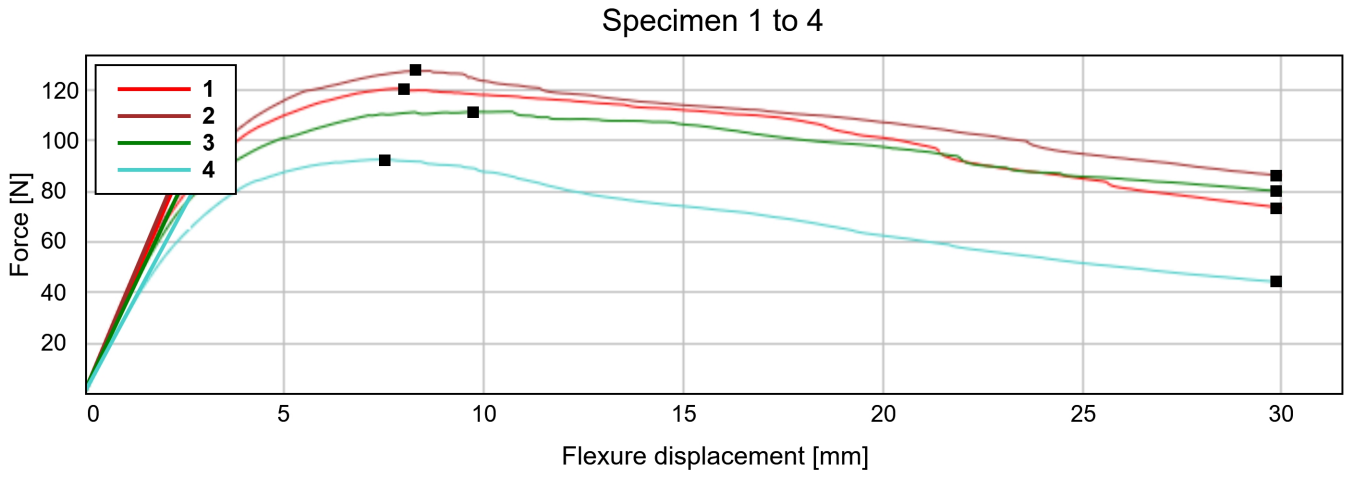
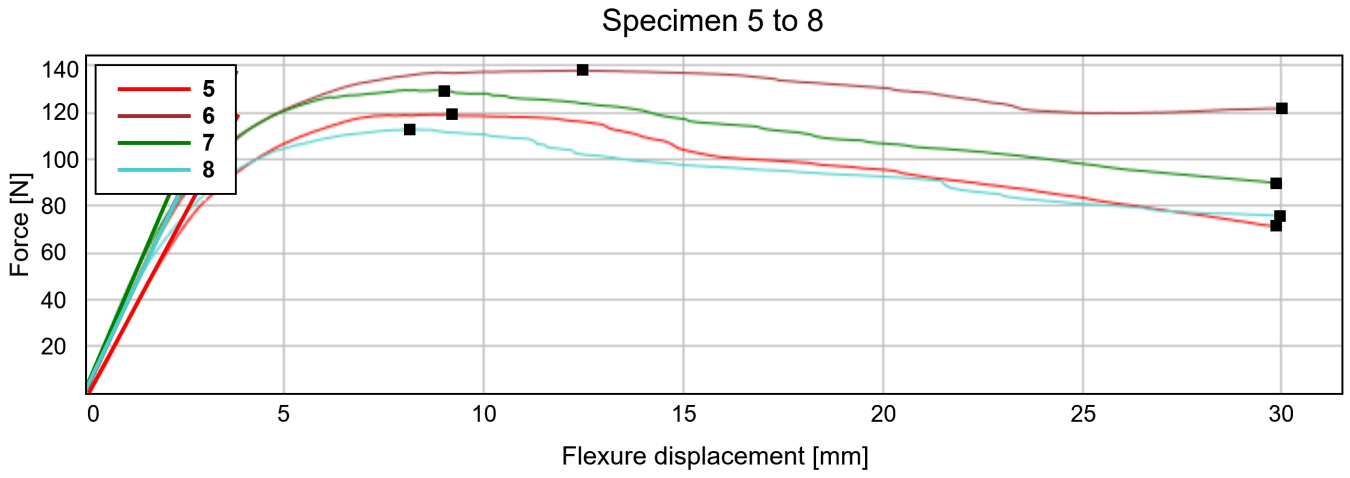
To determine material propeety contribution to stalk flexural stiffness

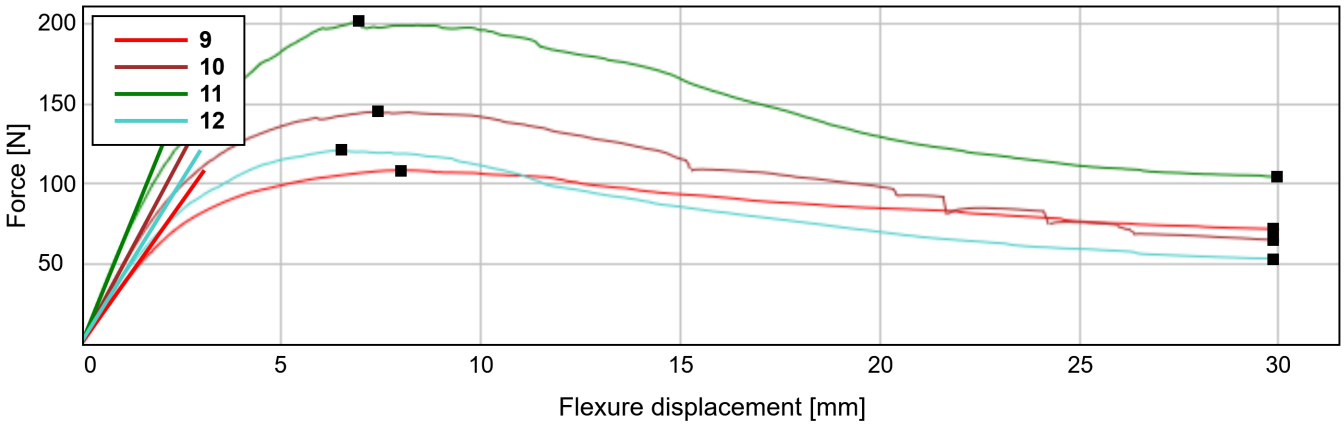
3-Point Bend Testing Protocol for Maize Stalks
Erin Sparks Lab
University of Delaware

Rate 1	1.50 mm/s
Operator	Irene Ikiriko

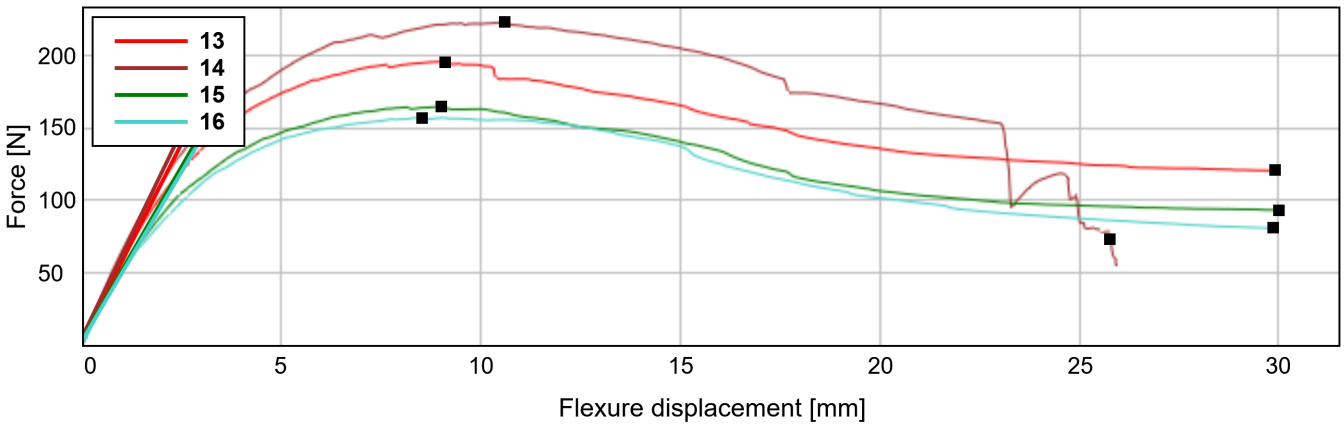




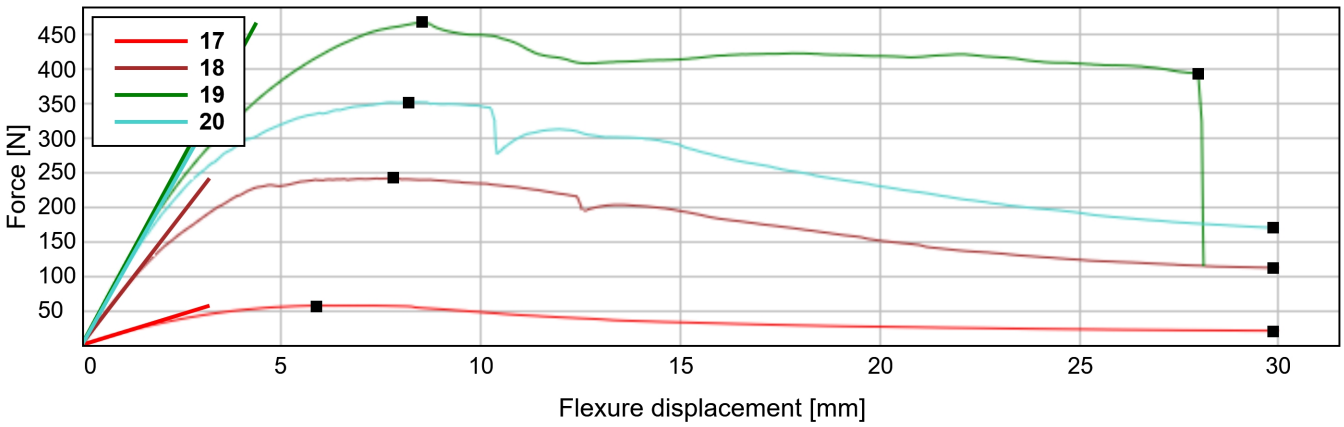
Specimen 9 to 12



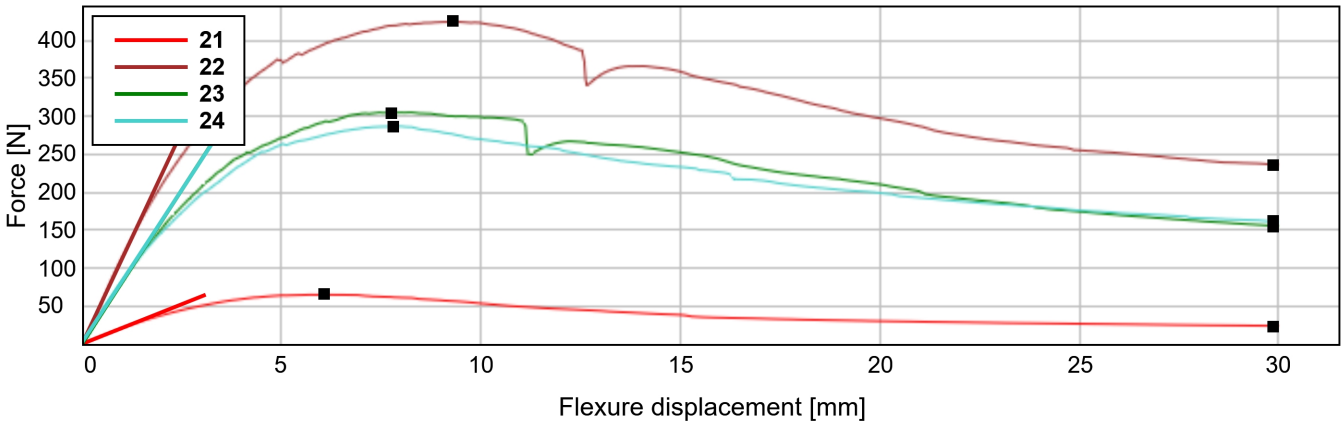
Specimen 13 to 16



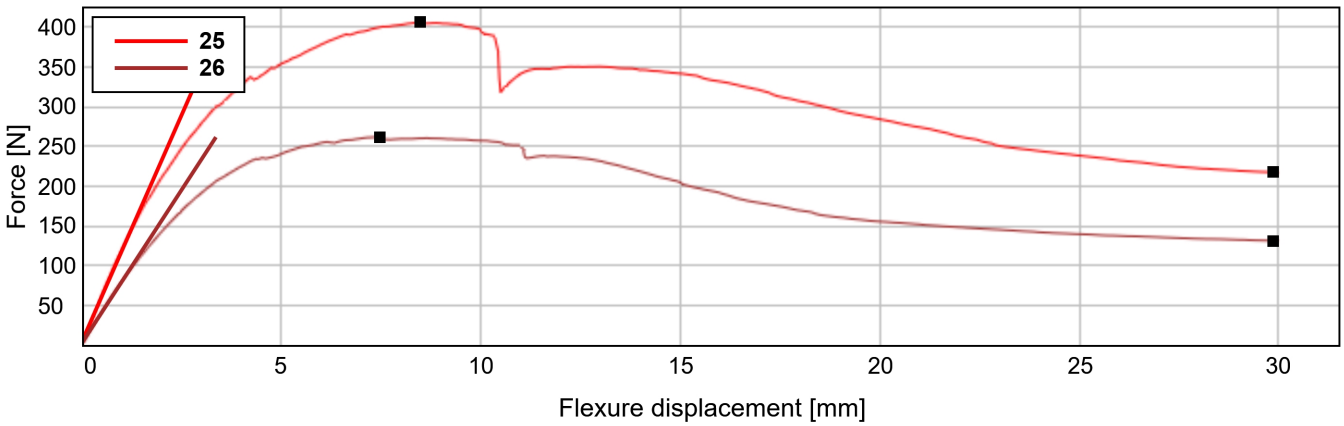
Specimen 17 to 20



Specimen 21 to 24



Specimen 25 to 26



	Genotype	Plant Number	Plot Number
1	Mo17	3	450
2	Mo17	7	450
3	Mo17	6	450
4	Mo17	11	450
5	Mo17	1	450
6	Mo17	13	450
7	Mo17	2	450
8	Mo17	12	450
9	Mo17	8	450
10	B73	5	343
11	B73	2	343
12	B73	9	343
13	B73	3	341
14	B73	4	341
15	B73	8	341
16	B73	10	341

	Genotype	Plant Number	Plot Number
17	CML258	5	230
18	CML258	3	230
19	CML258	4	230
20	CML258	6	232
21	CML258	2	232
22	CML258	4	232
23	CML258	5	232
24	CML258	7	232
25	CML258	8	232
26	CML258	9	232

	Whorl Number (use field-based numbering - top down)	Root Sample Number	Vertical Specimen Diameter [mm]
1			16.21
2			16.70
3			16.27
4			15.08
5			16.30
6			17.86
7			17.01
8			16.85
9			16.18
10			18.66
11			21.40
12			17.94
13			21.98
14			22.91
15			21.45
16			20.54
17			12.77
18			21.19
19			25.98
20			23.18
21			13.22
22			23.35
23			22.25
24			21.66
25			24.77
26			20.50

	Horizontal Specimen Diameter [mm]	Specimen Length [mm]	Force at Break (Standard) [N]
1	21.91	300.00	73.64
2	21.84	300.00	86.46
3	21.90	300.00	80.23
4	19.40	300.00	44.21
5	20.75	300.00	71.35
6	23.26	300.00	121.84
7	22.08	300.00	89.93
8	21.93	300.00	76.07
9	21.70	300.00	71.92
10	22.66	300.00	65.07
11	25.51	300.00	104.56
12	21.62	300.00	53.48
13	24.92	300.00	120.89
14	28.80	300.00	73.83
15	26.18	300.00	93.56
16	25.10	300.00	80.93
17	14.86	300.00	20.79
18	24.57	300.00	112.21
19	29.73	300.00	394.15
20	26.34	300.00	170.12
21	14.55	300.00	24.06
22	28.37	300.00	236.55
23	25.75	300.00	155.82
24	26.00	300.00	161.53
25	29.28	300.00	217.80
26	23.83	300.00	131.65

	Displacement at Break (Standard) [mm]	Flexure displacement at Break (Standard) [mm]	Maximum Force [N]
1	83.00	29.87	120.84
2	56.71	29.87	127.81
3	57.16	29.87	111.58
4	59.40	29.87	92.66
5	55.95	29.87	119.28
6	57.03	29.99	138.04
7	56.84	29.87	129.71
8	57.01	29.96	112.97
9	58.60	29.87	108.51

	Displacement at Break (Standard) [mm]	Flexure displacement at Break (Standard) [mm]	Maximum Force [N]
10	55.25	29.87	144.91
11	52.78	29.96	201.13
12	57.06	29.87	121.02
13	53.99	29.93	196.28
14	47.81	25.79	223.10
15	52.98	30.00	165.40
16	53.30	29.87	157.50
17	60.87	29.87	57.22
18	53.25	29.87	242.02
19	46.90	27.98	467.92
20	49.58	29.87	352.57
21	61.13	29.87	65.13
22	50.18	29.87	424.72
23	51.32	29.87	305.16
24	51.72	29.87	287.08
25	49.33	29.87	406.32
26	54.17	29.87	262.18

	Flexure displacement at Maximum Force [mm]	Maximum Slope (Automatic) [N/mm]
1	8.00	36.34
2	8.30	37.51
3	9.74	33.24
4	7.49	29.31
5	9.20	31.77
6	12.47	36.09
7	9.02	39.59
8	8.12	35.78
9	7.97	34.99
10	7.40	46.44
11	6.92	60.95
12	6.50	40.02
13	9.11	54.47
14	10.61	57.07
15	9.02	47.91
16	8.54	46.83
17	5.87	17.77
18	7.82	75.07

	Flexure displacement at Maximum Force [mm]	Maximum Slope (Automatic) [N/mm]
19	8.54	106.75
20	8.21	102.58
21	6.08	20.90
22	9.29	111.90
23	7.73	81.08
24	7.82	80.37
25	8.48	114.14
26	7.46	77.13