Nutrient Budget Model Predictions

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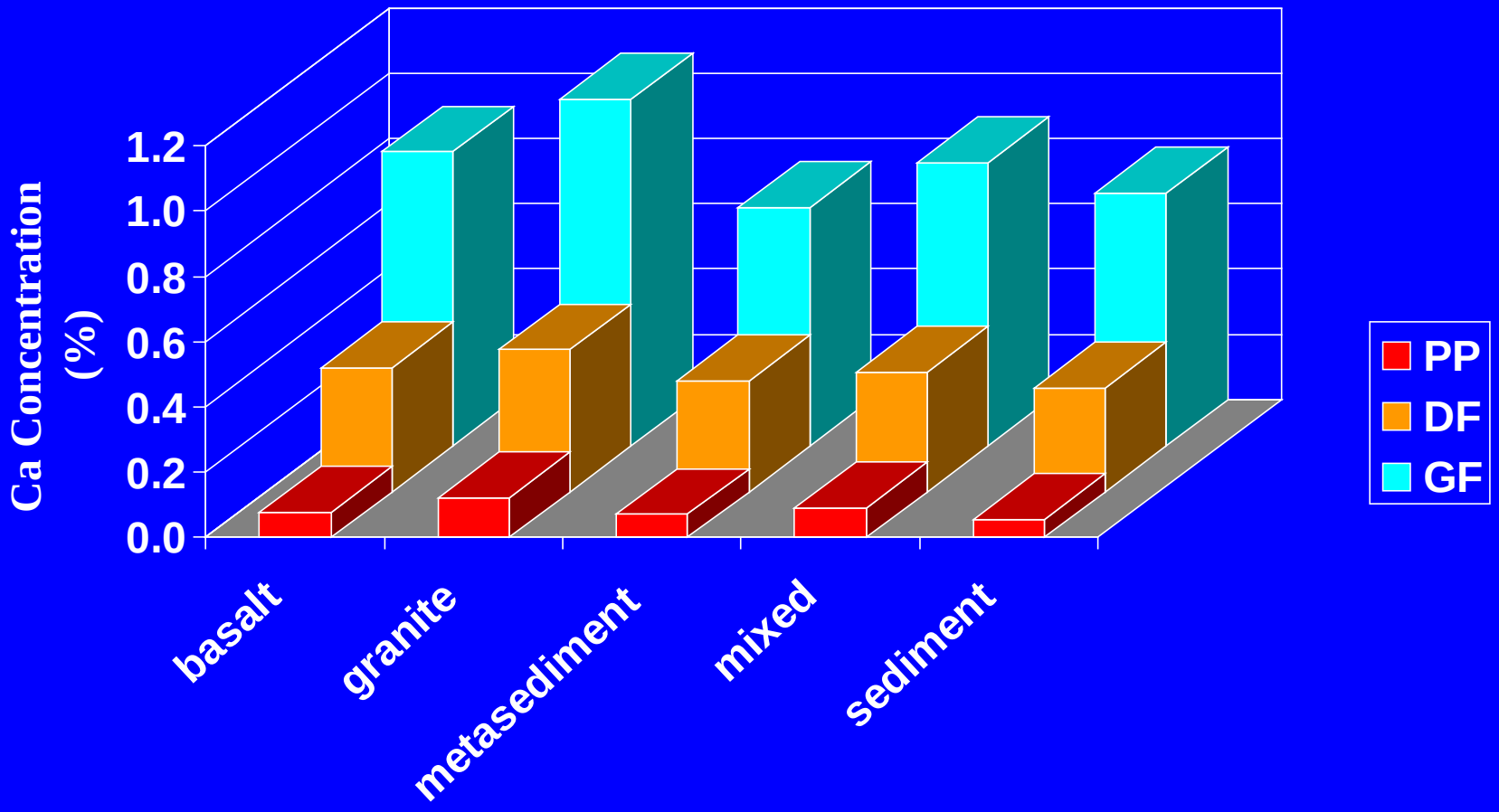
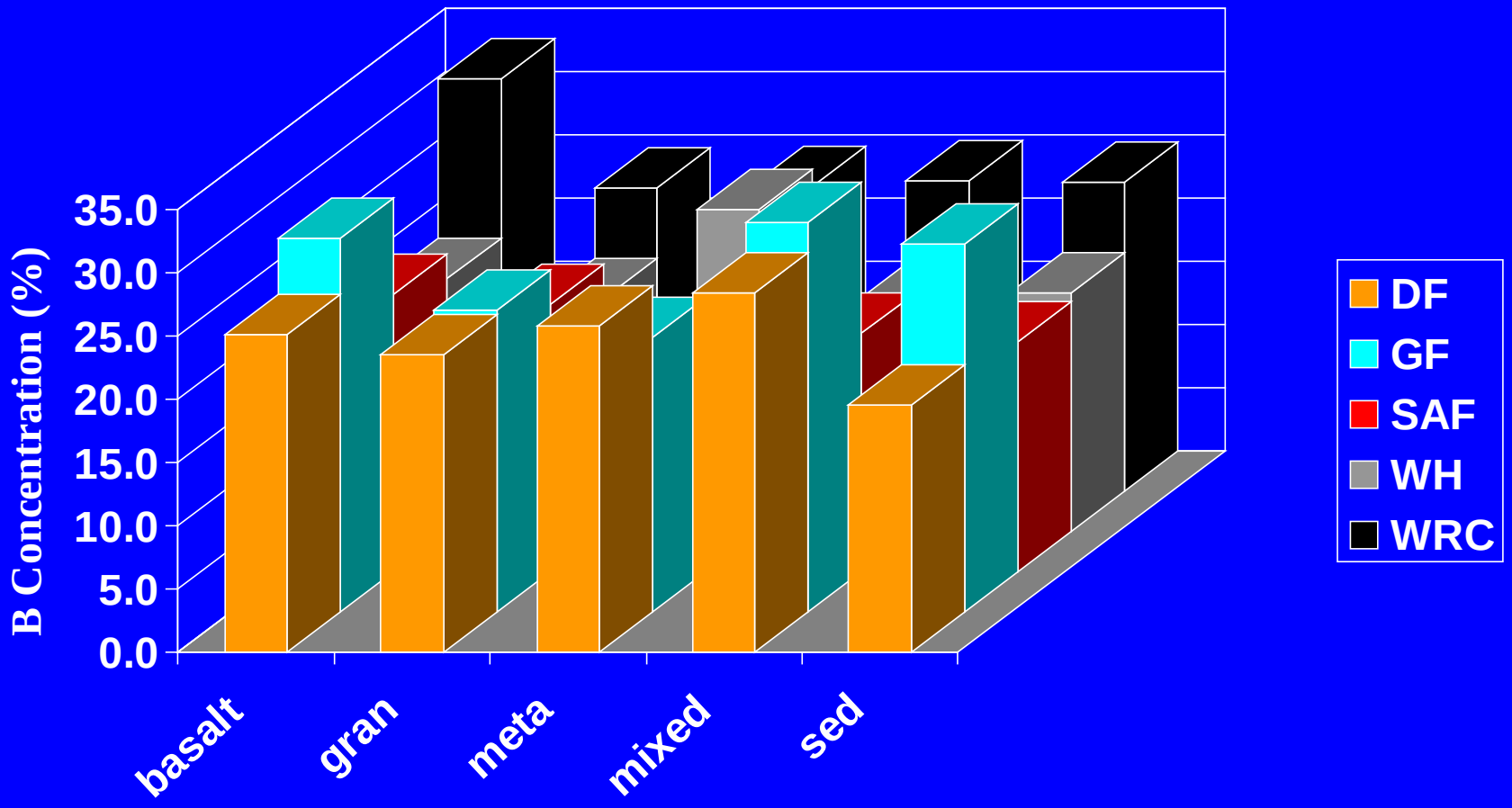
Foliar Ca Concentration By Rock Type and Species on WRC Vegetation Series



Douglas-fir Foliar B Concentration by Rock Type and Vegetation Series



The Simulation Experiment

- Start with a particular stand: Snowden
  - Mixed conifer
  - Basalt, GF series
- Vary species composition
  - 100 % GF
  - 100 % DF
  - 100 % PP
- Vary Vegetation and Rock Type
  - Metasediment, DF series
  - Basalt, WRC series

Snowden

Mixed conifer

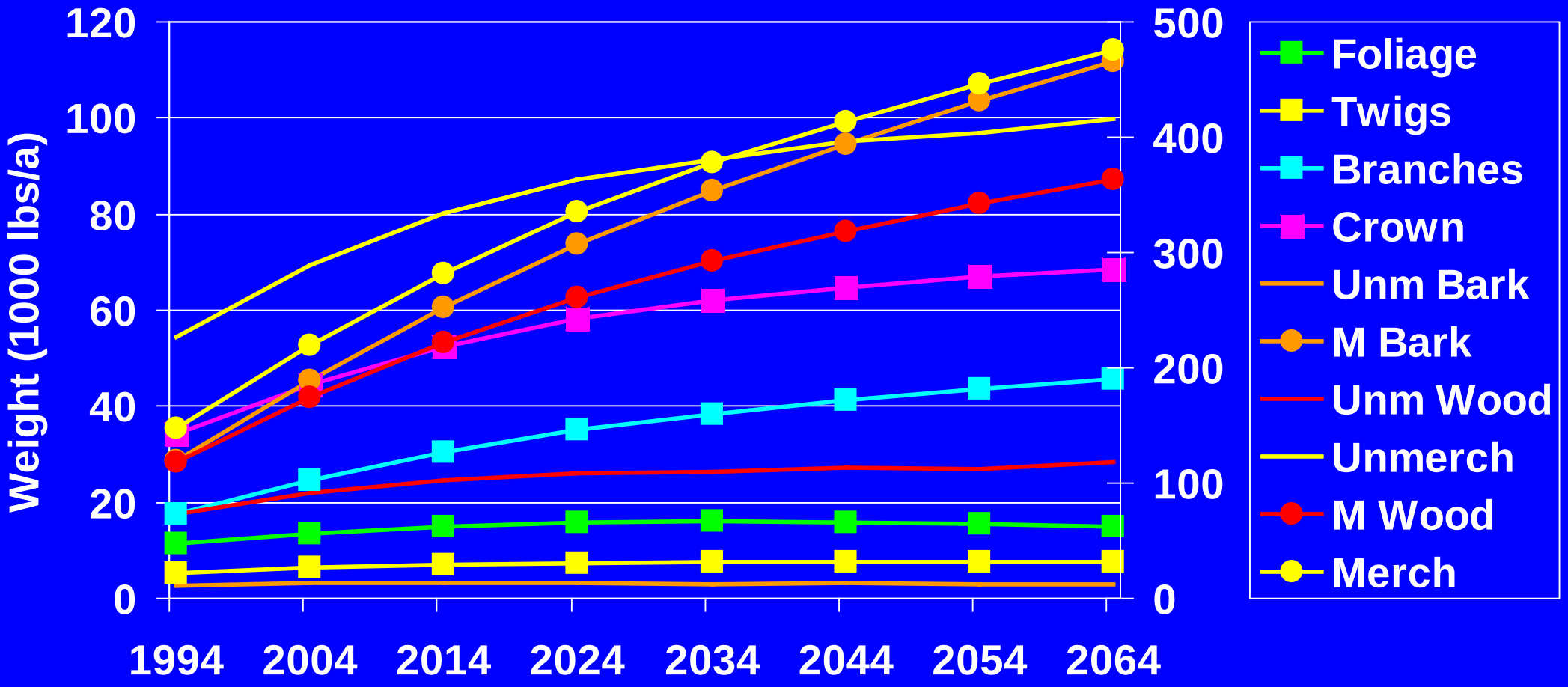
Basalt

GF series

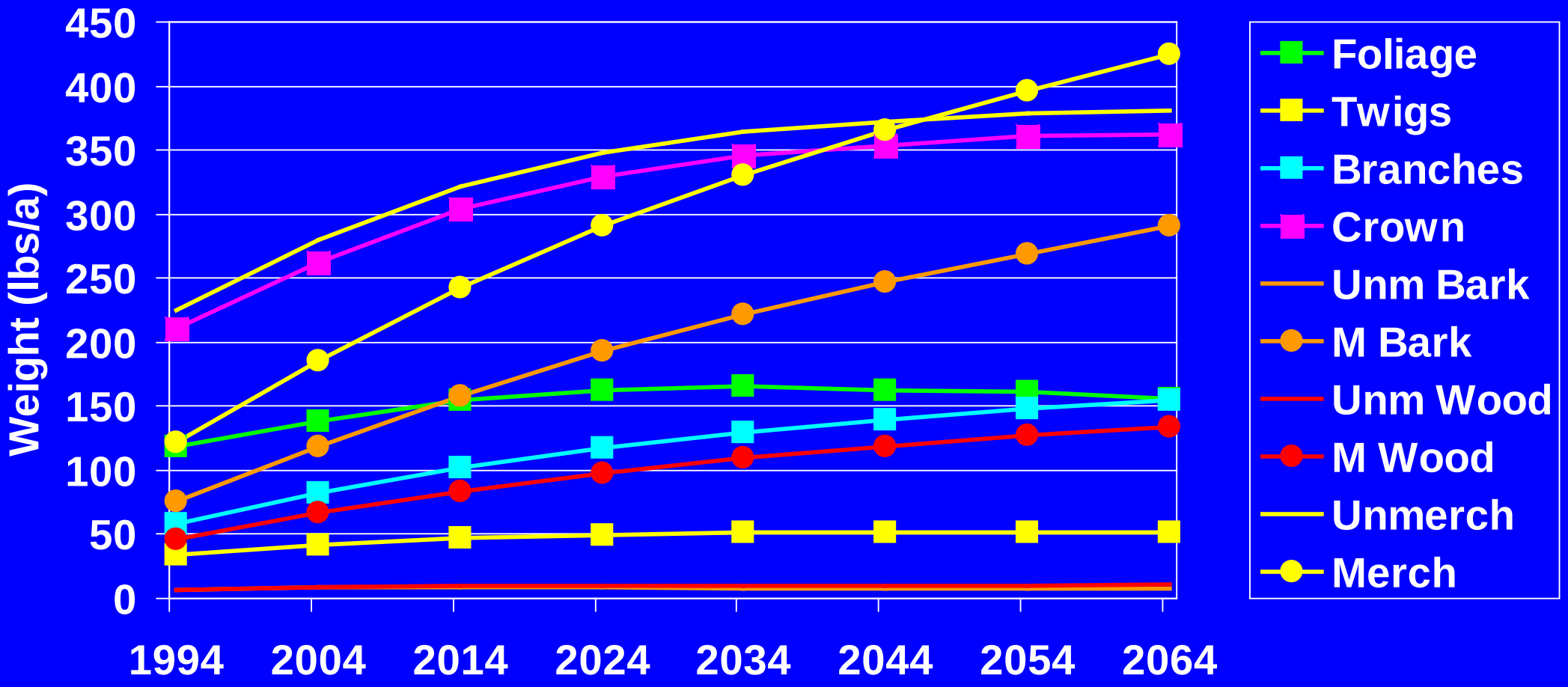
START OF SIMULATION PERIOD

YEAR	AGE	NO OF TREES	BA	SDI	CCF	TOP HT	QMD	TOTAL CU FT	MERCH CU FT	MERCH BD FT
1994	40	240	138	232	153	87	10.3	4299	3746	19700
2004	50	212	182	285	186	96	12.5	6188	5496	29652
2014	60	234	214	320	206	103	12.9	7761	6986	39029
2024	70	186	235	338	217	110	15.2	9045	8223	47230
2034	80	173	250	348	223	115	16.3	10051	9220	54240
2044	90	140	260	351	225	119	18.5	10892	10031	60580
2054	100	129	269	353	226	123	19.5	11633	10786	66314
2064	110	107	276	354	226	127	21.8	12324	11428	71809

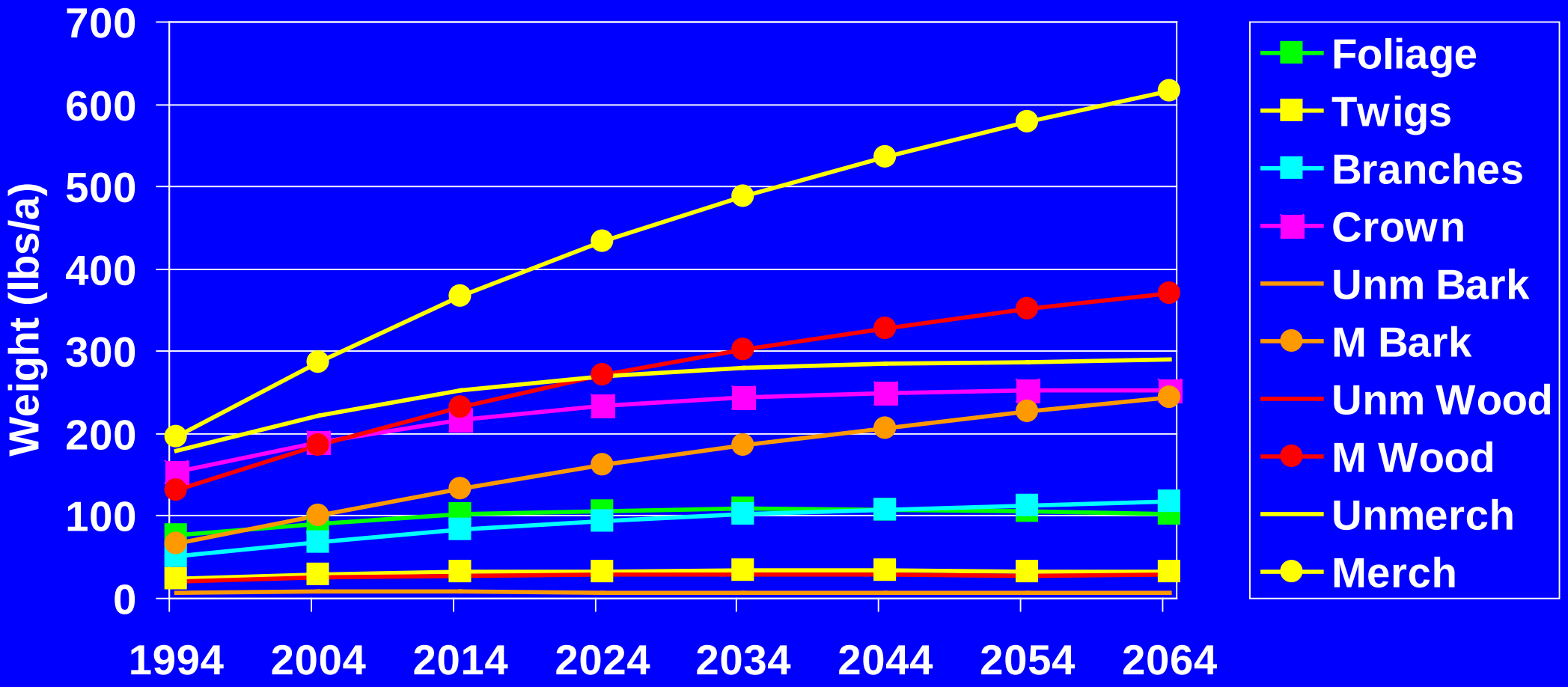
Tree Biomass by Component



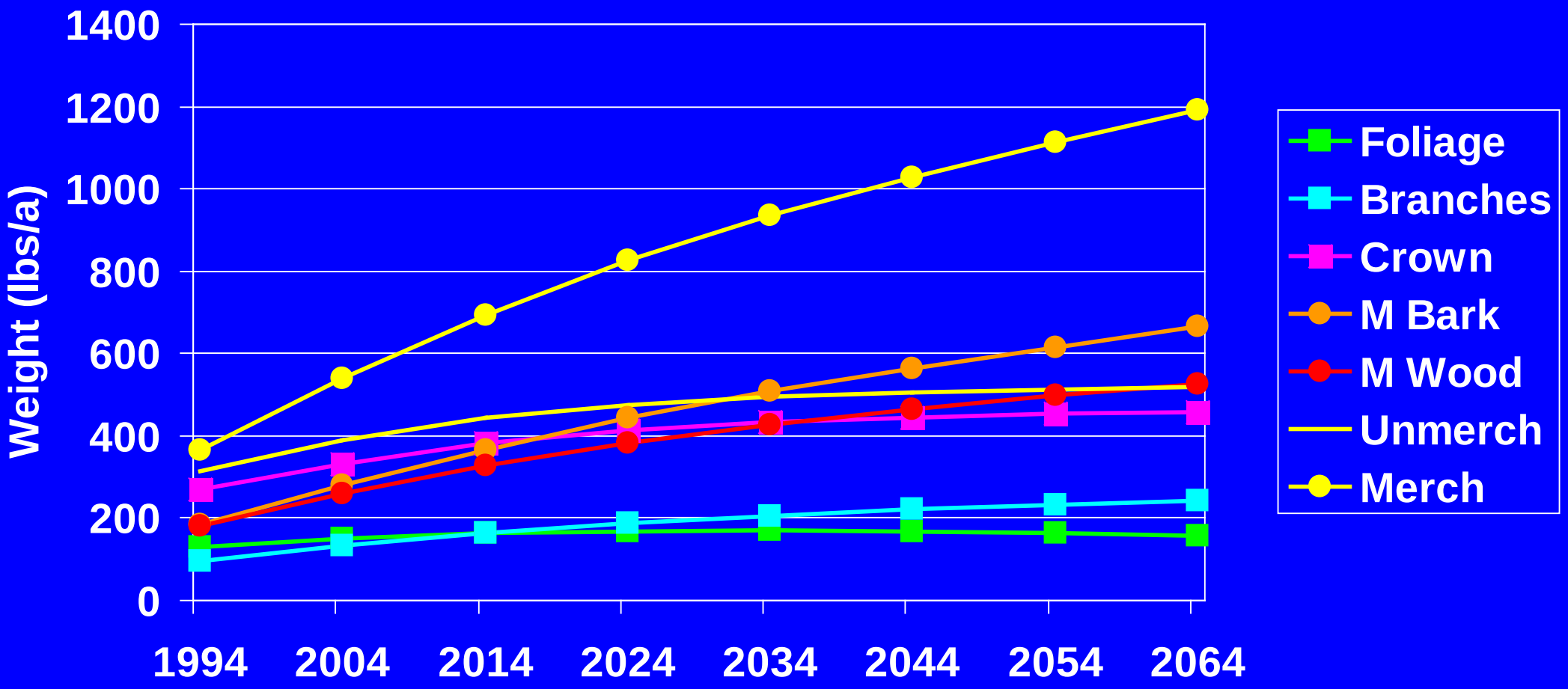
Nitrogen Content by Component



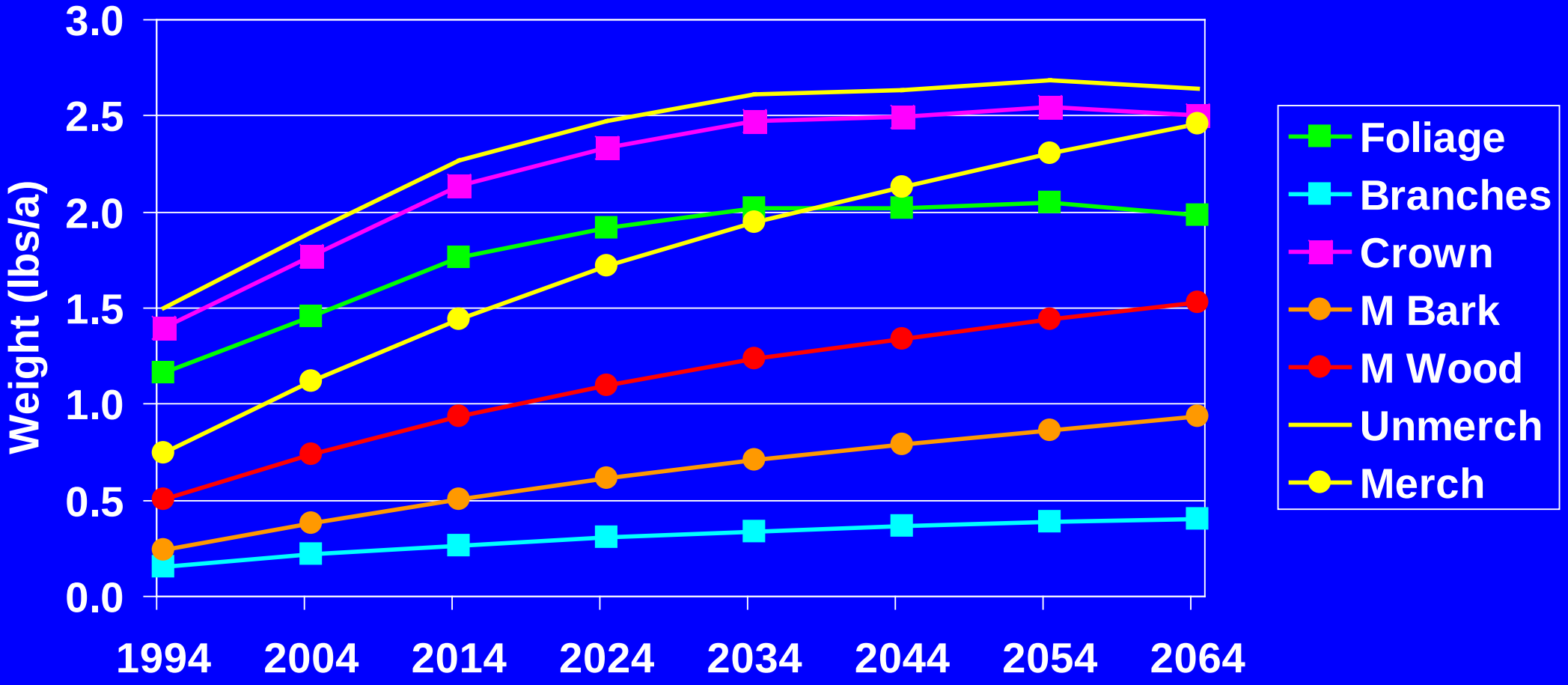
Potassium Content by Component



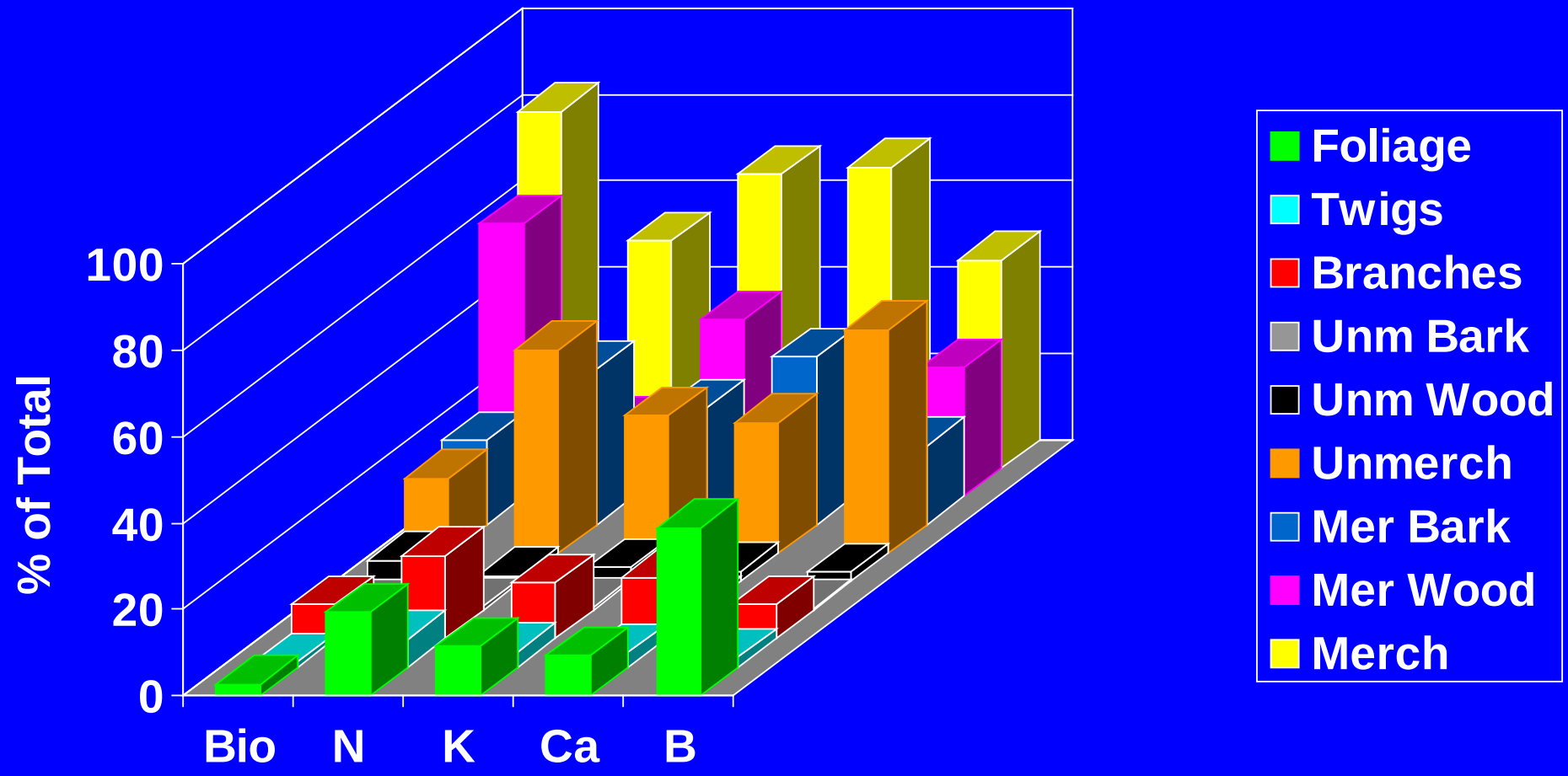
Calcium Content by Component



Boron Content by Component



2064 Projected Component Distribution: Snowden Mixed Conifer Basalt, GF Series



Snowden

100% GF

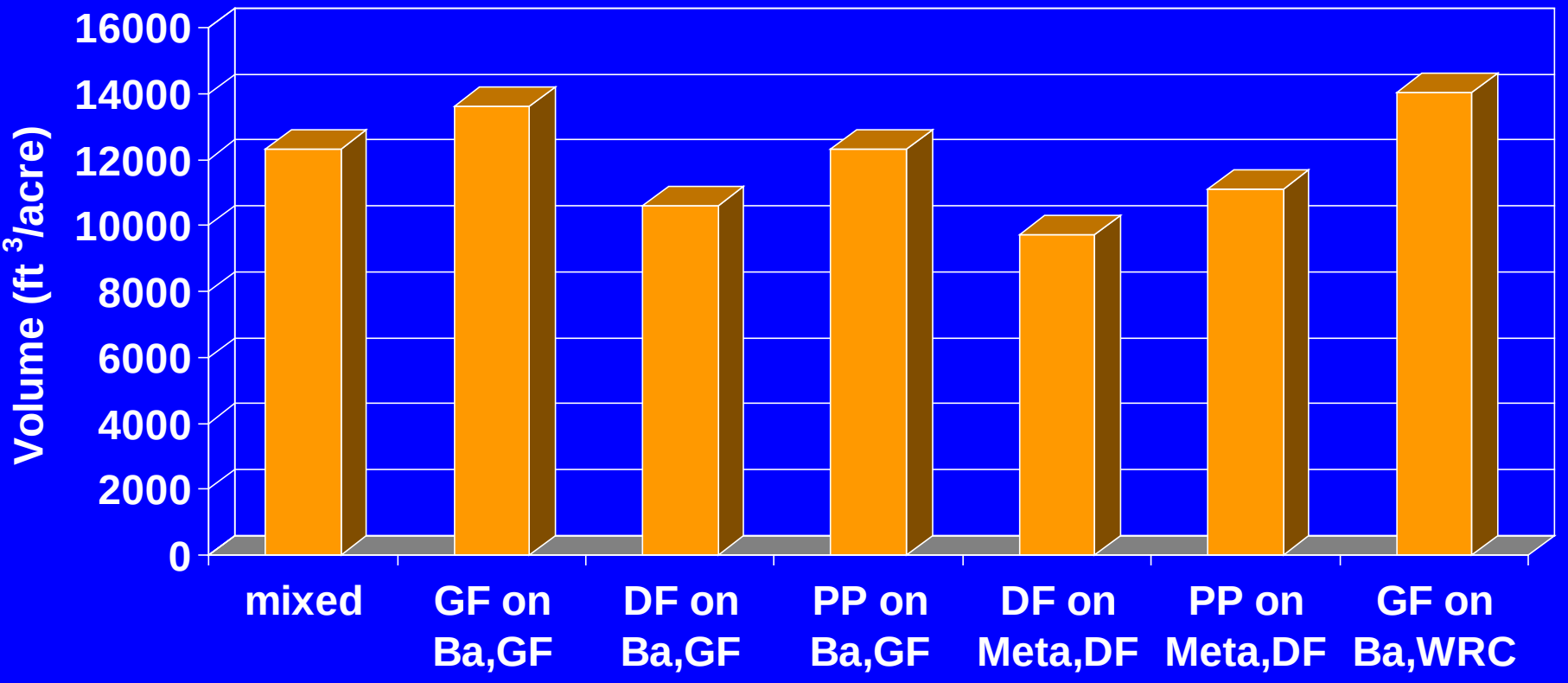
Basalt

GF series

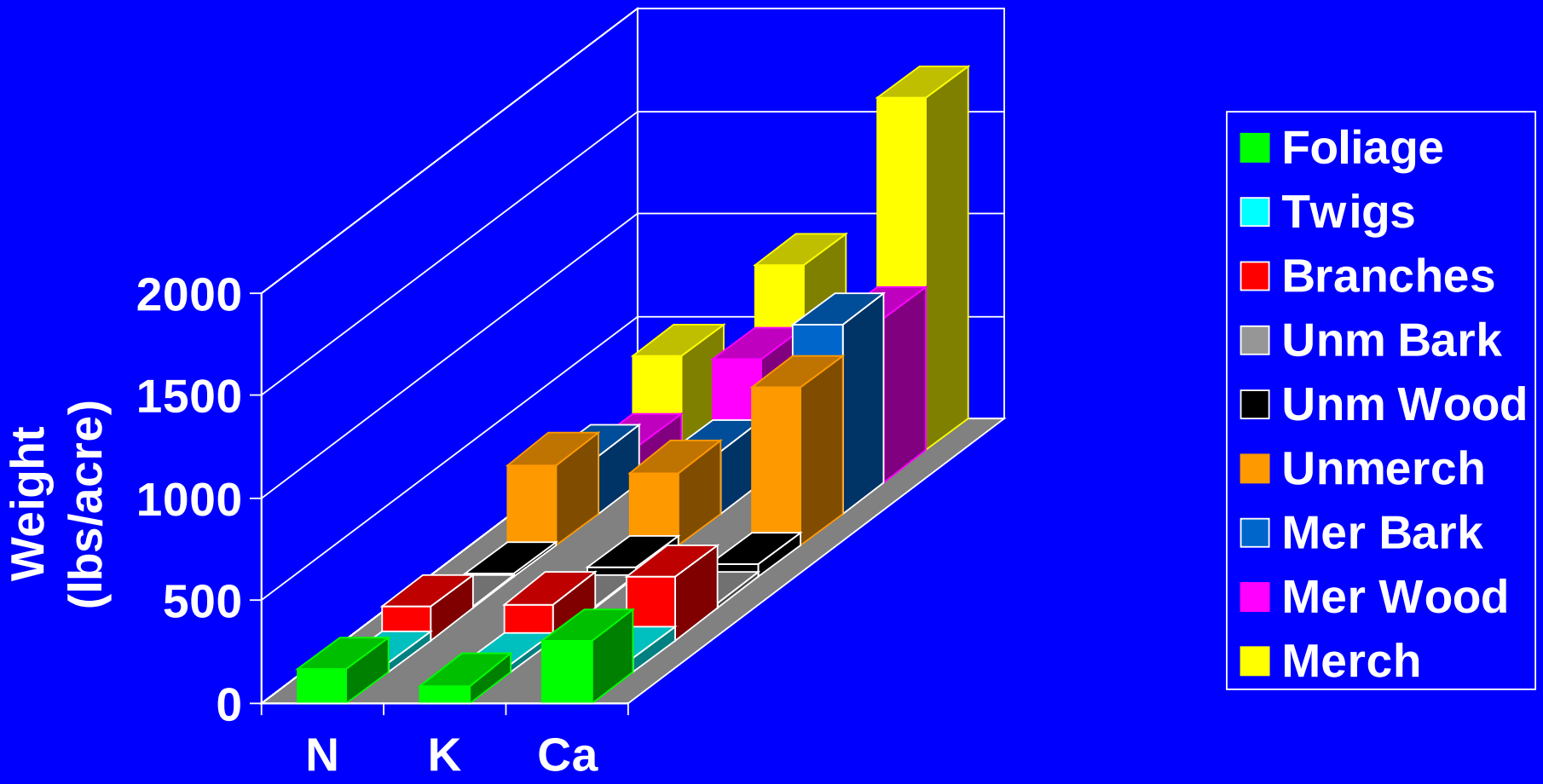
START OF SIMULATION PERIOD

YEAR	AGE	NO OF TREES	BA	SDI	CCF	TOP HT	QMD	TOTAL CU FT	MERCH CU FT	MERCH BD FT
1994	40	240	138	232	167	87	10.3	4573	4022	21300
2004	50	212	172	274	196	97	12.2	6305	5556	30138
2014	60	253	199	306	219	105	12.0	7921	7094	39602
2024	70	201	219	325	235	112	14.1	9344	8525	49123
2034	80	195	236	340	247	118	14.9	10665	9822	58040
2044	90	157	248	347	254	124	17.0	11802	10921	66032
2054	100	150	256	351	257	128	17.7	12751	11811	72976
2064	110	123	263	352	260	133	19.8	13625	12667	79721

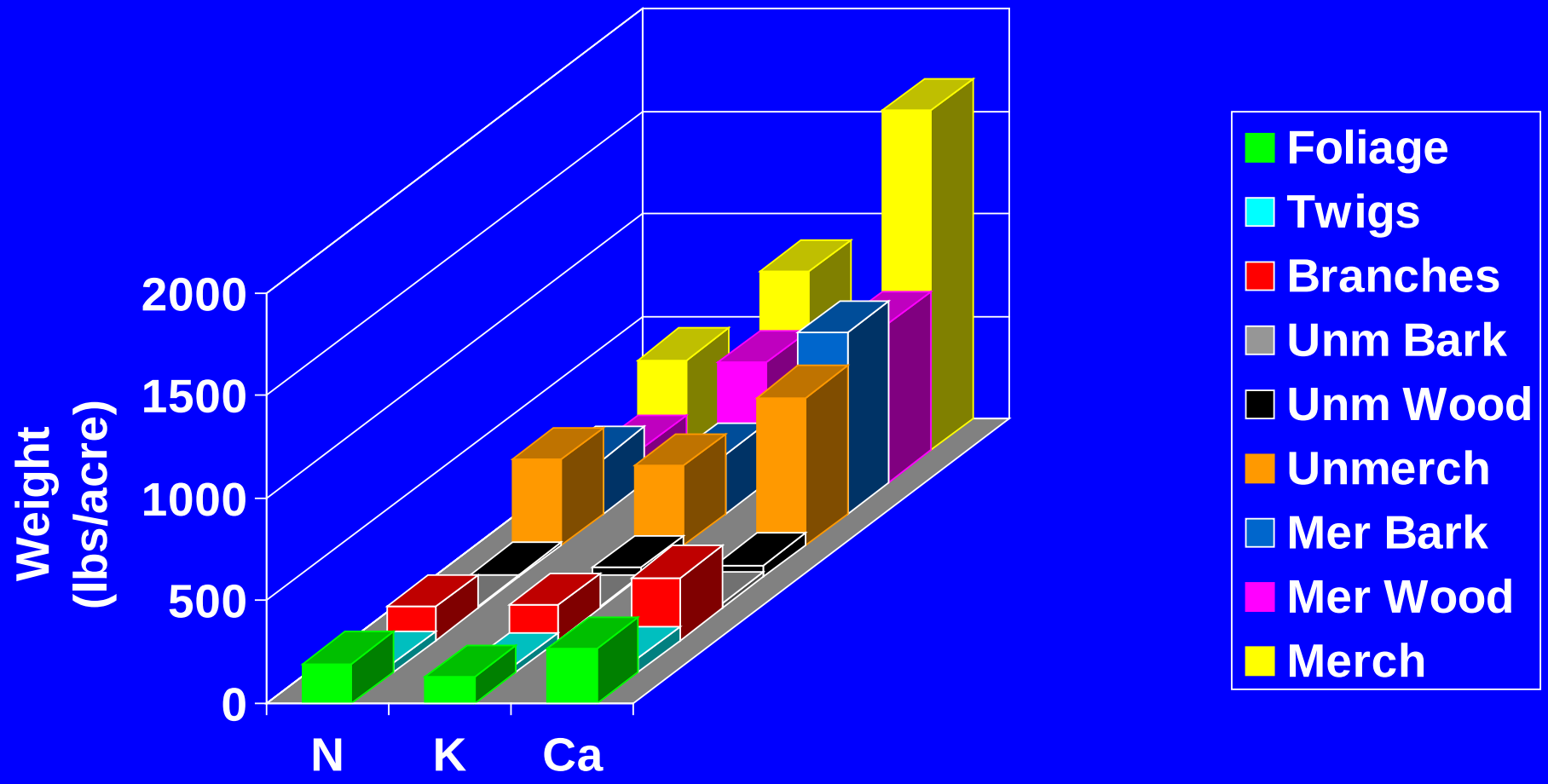
2064 Projected Cubic Foot Volume



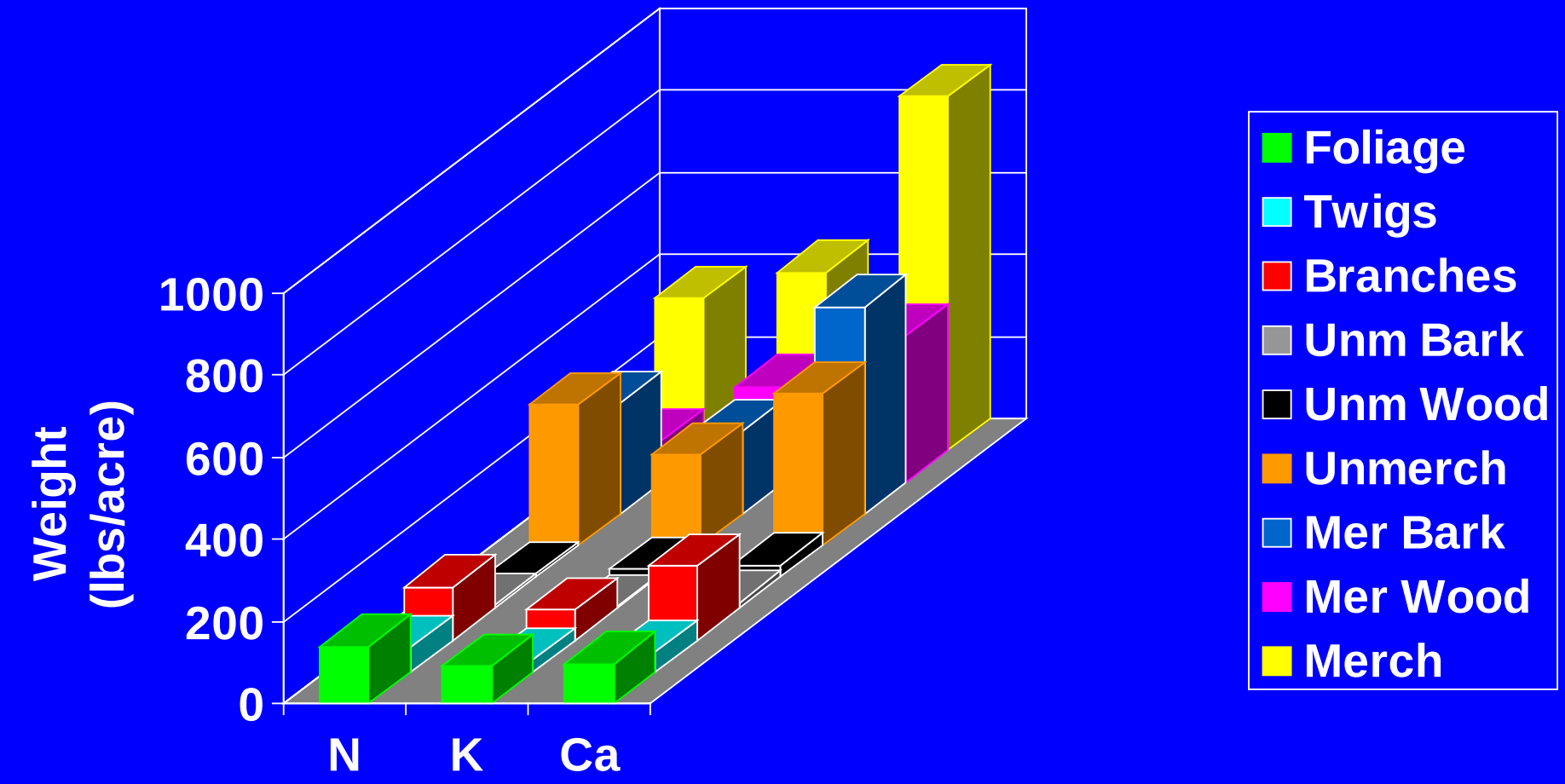
Component Distribution: 100% GF Basalt, WRC Series



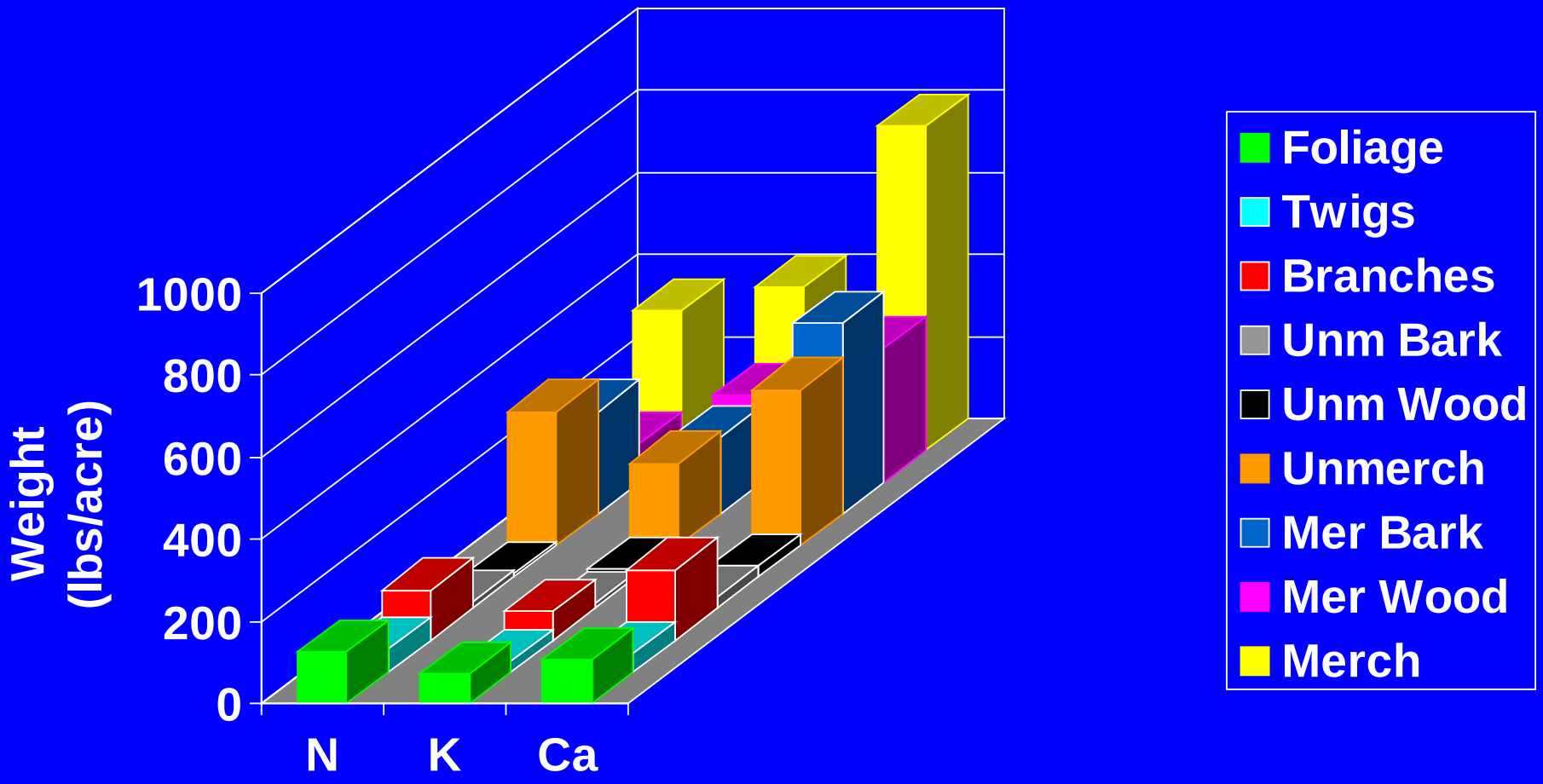
Component Distribution: 100% GF Basalt, GF Series



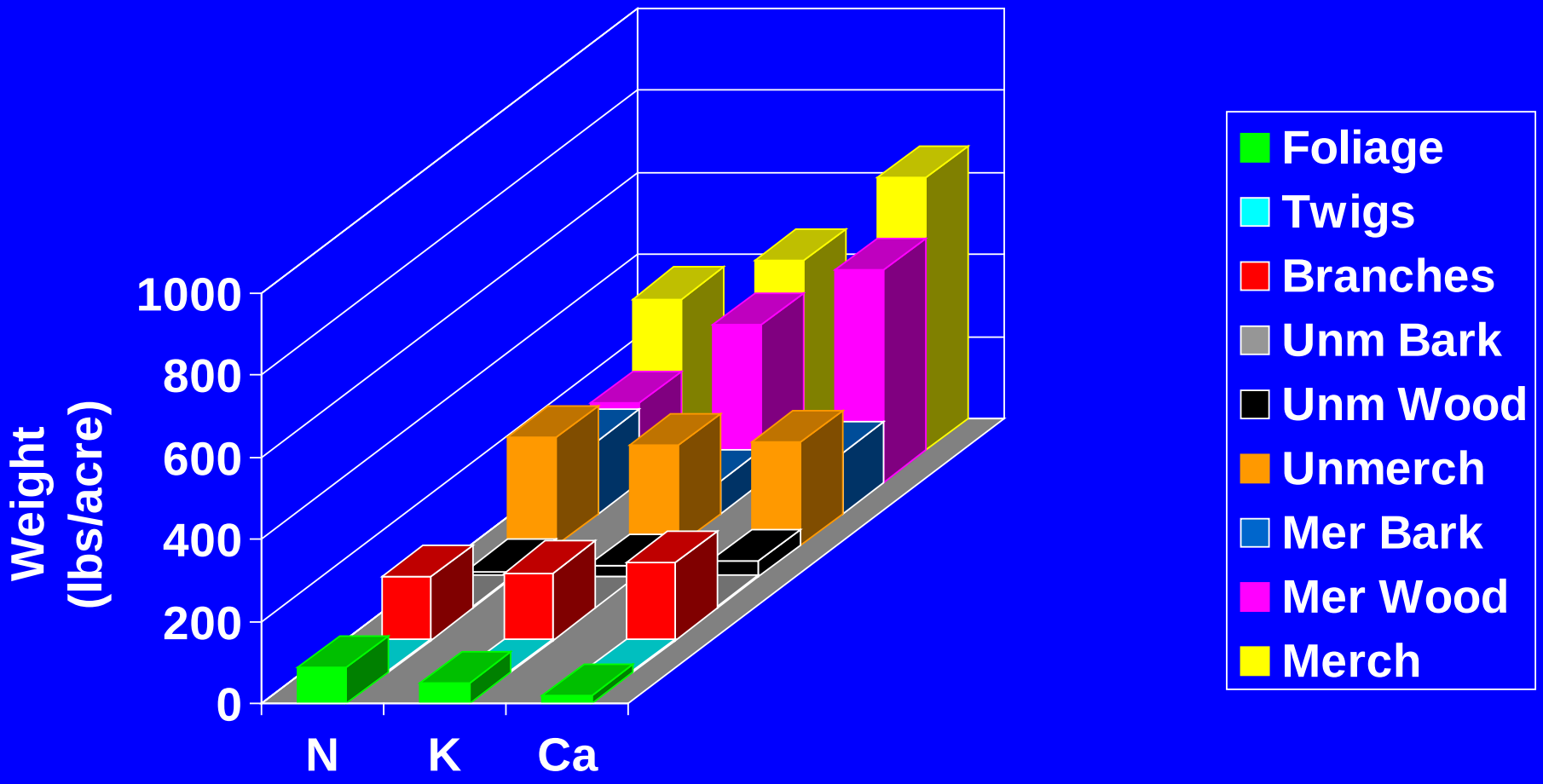
Component Distribution: 100% DF Basalt, GF Series



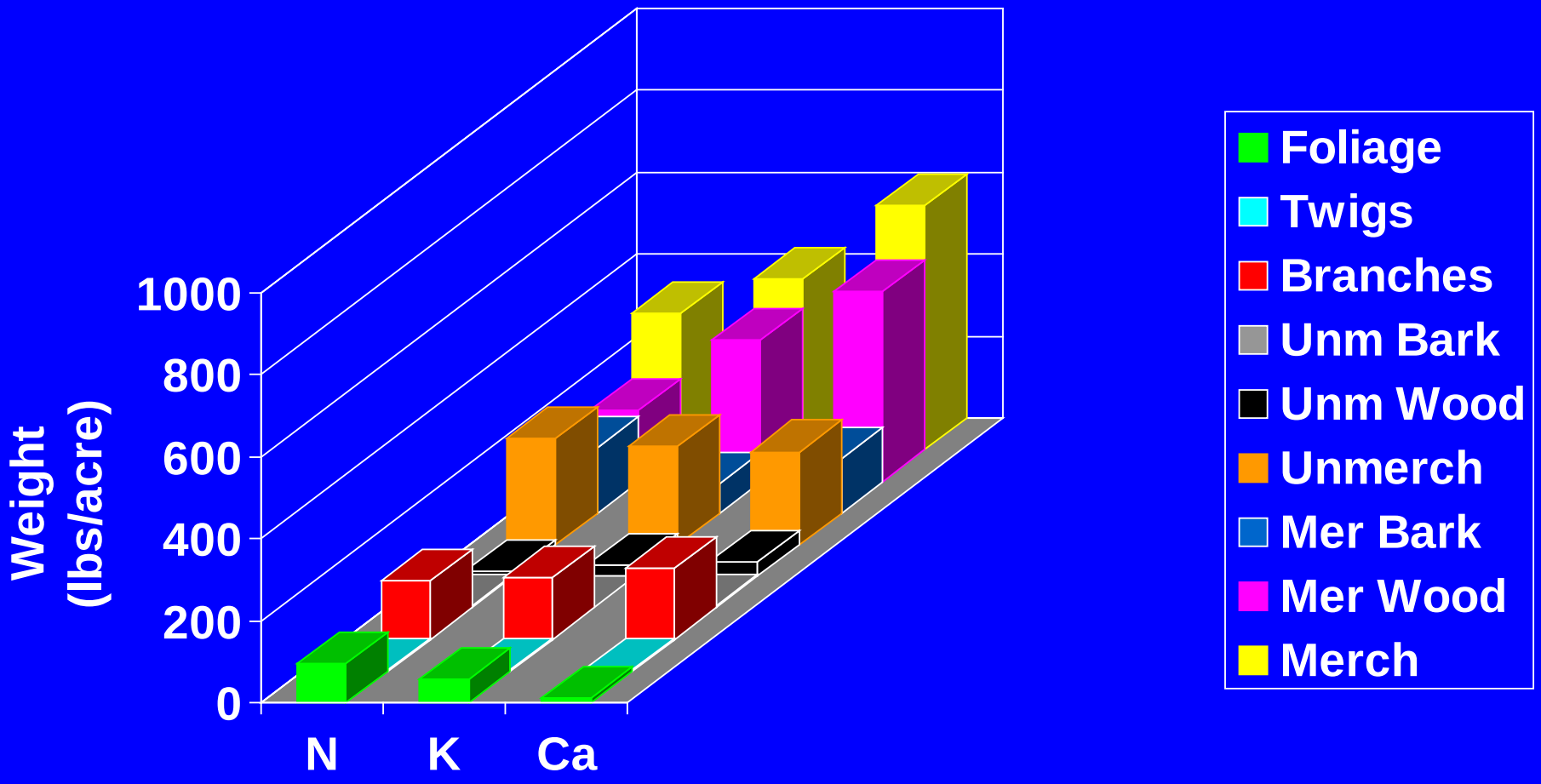
Component Distribution: 100% DF Metasediment, DF Series



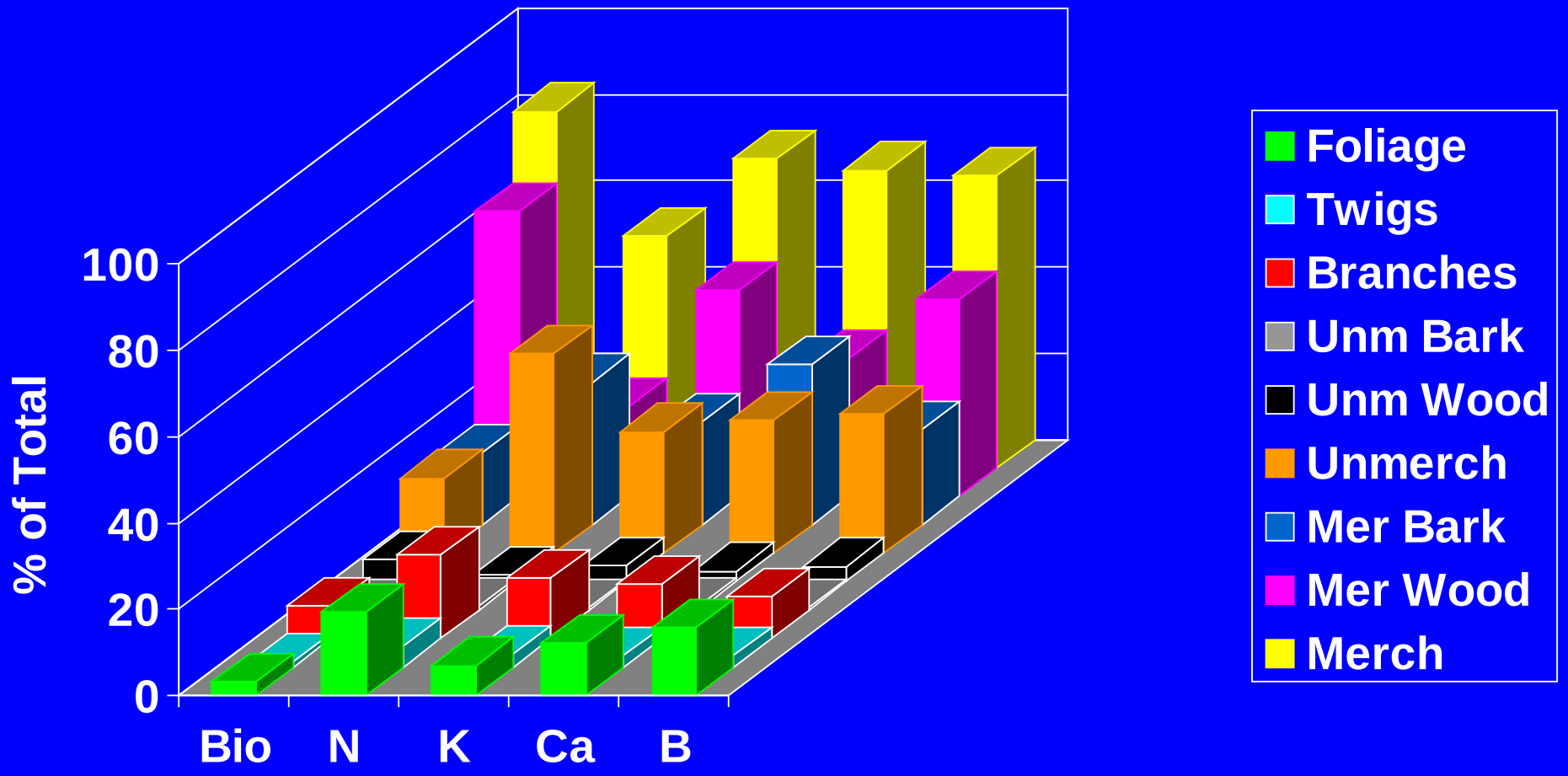
Component Distribution: 100% PP Basalt, GF Series



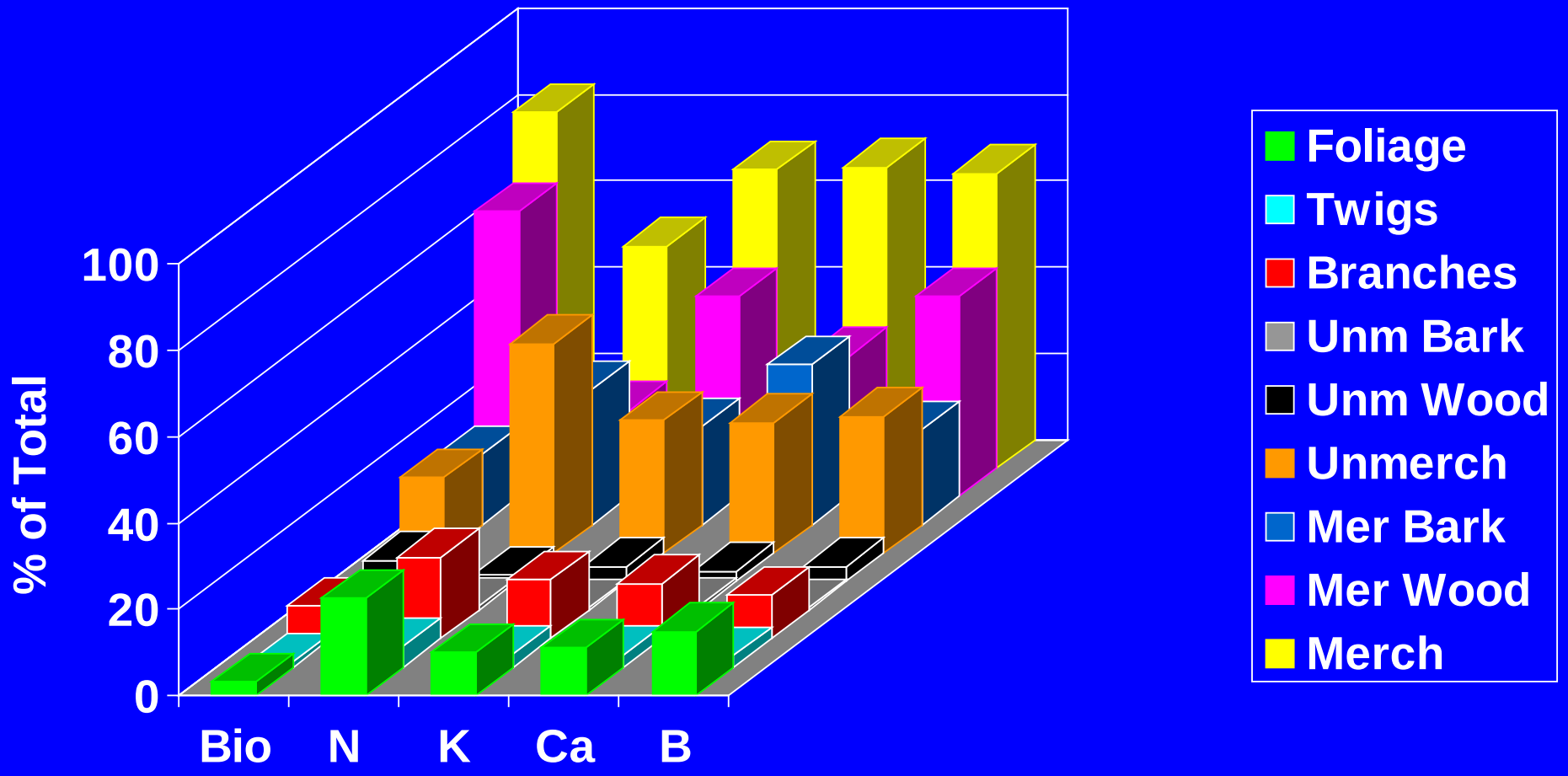
Component Distribution: 100% PP Metasediment, DF Series



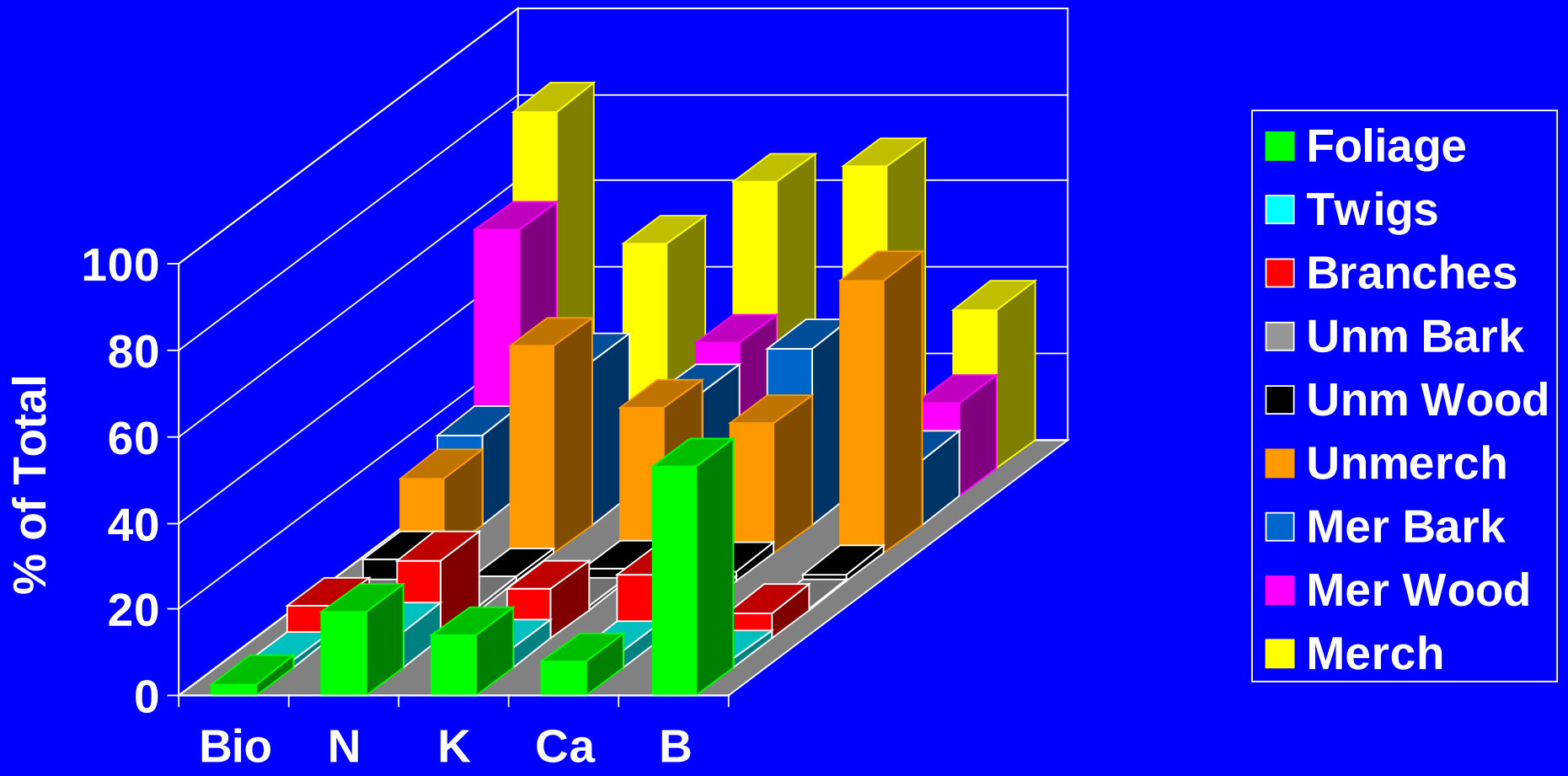
Component Distribution: 100% GF Basalt, WRC Series



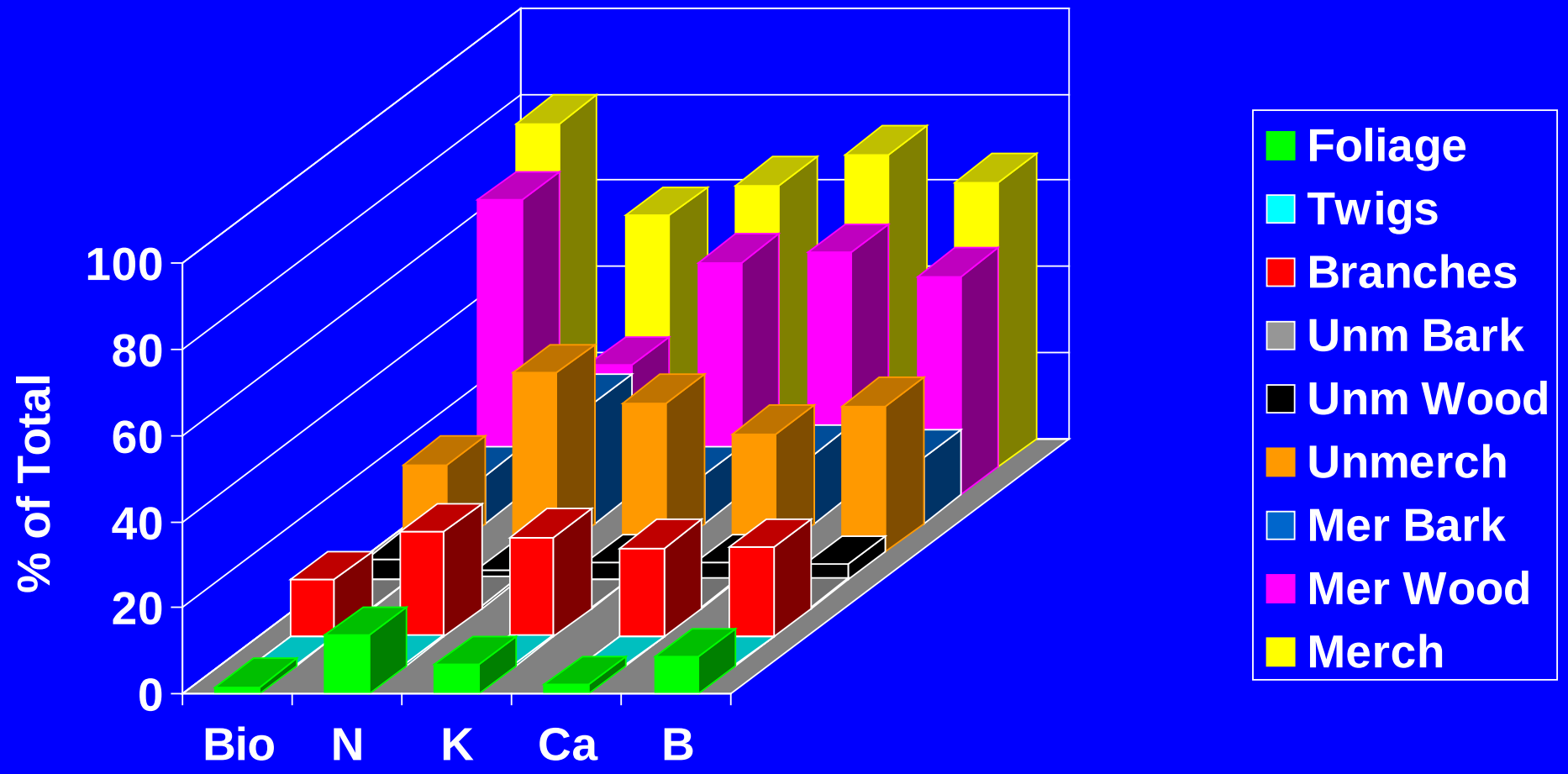
Component Distribution: 100% GF Basalt, GF Series



Component Distribution: 100% DF Basalt, GF Series



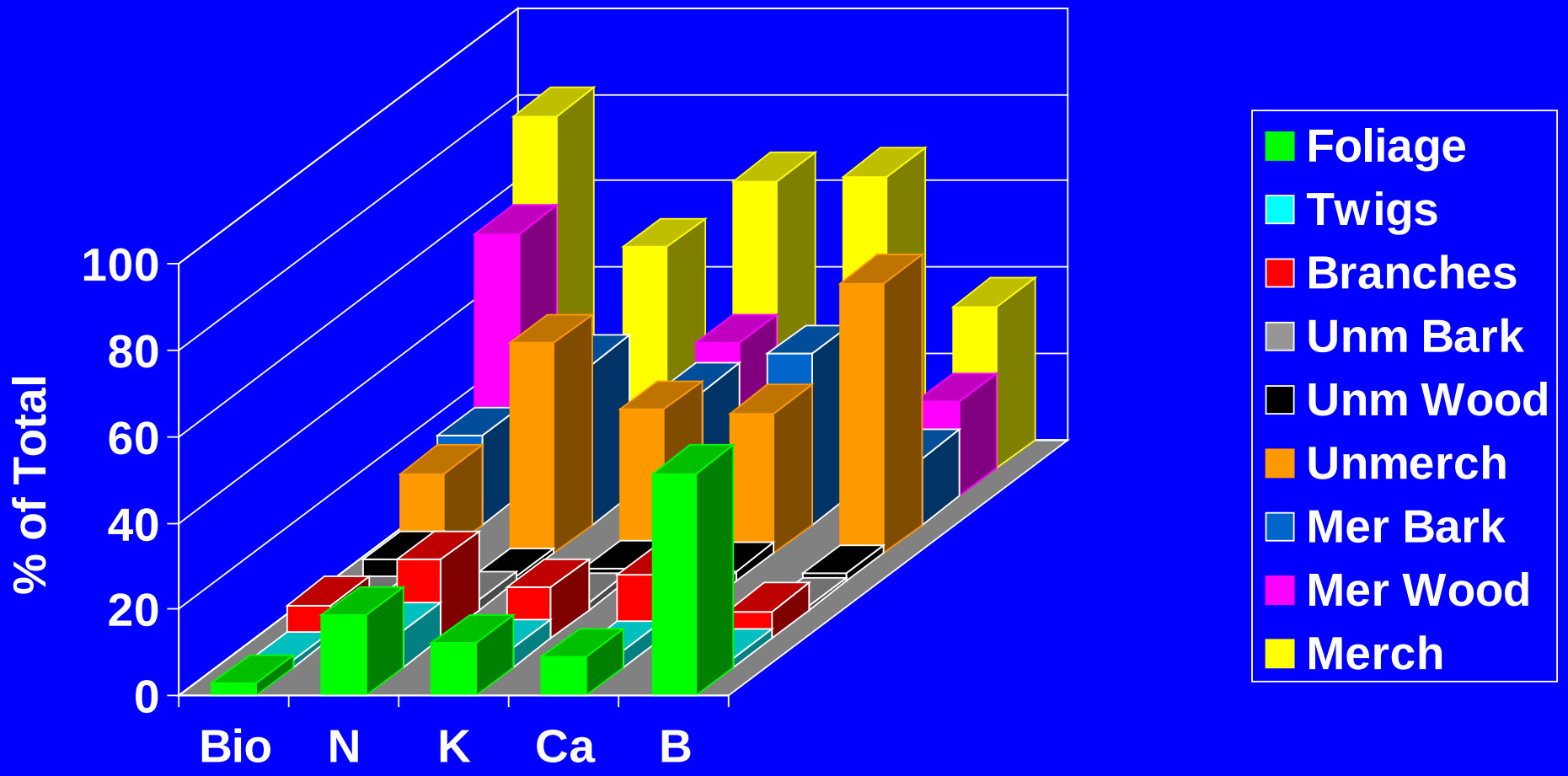
Component Distribution: 100% PP Basalt, GF Series



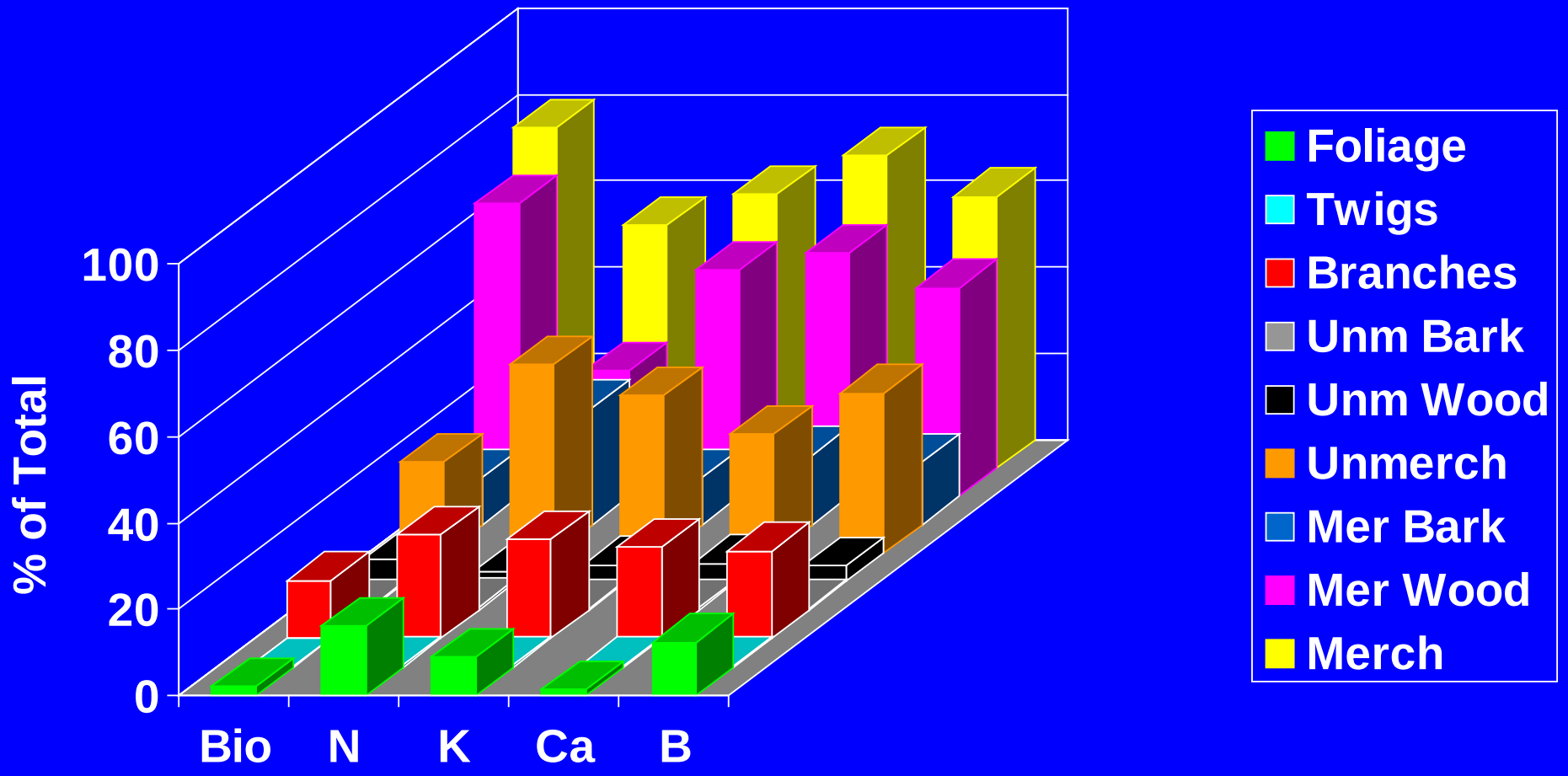
Model Behavior

- Differences in species nutrient concentrations are reflected in different patterns of nutrient accumlation and distribution where species composition varies.
- The model shows little sensitivity to site variation modeled by rock type and vegetation series. This is hardly surprising as the only factor which varies with site is new foliage nutrient concentration. More sampling of other tissue across a range of sites will be needed to produce a model sensitive to site differencs.

Component Distribution: 100% DF Metasediment, DF Series



Component Distribution: 100% PP Metasediment, DF Series



Snowden

100% DF

Basalt

GF series

START OF SIMULATION PERIOD

YEAR	AGE	NO OF TREES	BA	SDI	CCF	TOP HT	QMD	TOTAL CU FT	MERCH CU FT	MERCH BD FT
1994	40	240	138	232	148	87	10.3	4002	3502	18400
2004	50	214	175	278	173	96	12.2	5479	4895	25999
2014	60	250	203	311	190	102	12.2	6760	6054	33062
2024	70	201	224	331	201	107	14.3	7832	7055	39284
2034	80	194	238	343	206	112	15.0	8713	7965	45264
2044	90	156	249	348	209	117	17.1	9439	8679	50322
2054	100	148	256	349	209	121	17.8	10039	9245	54602
2064	110	122	262	350	209	124	19.9	10593	9796	58777

Snowden

100% PP

Basalt

GF series

START OF SIMULATION PERIOD

YEAR	AGE	NO OF TREES	BA	SDI	CCF	TOP HT	QMD	TOTAL CU FT	MERCH CU FT	MERCH BD FT
1994	40	240	138	232	111	87	10.3	4370	3776	20300
2004	50	218	177	282	136	98	12.2	6322	5582	30468
2014	60	253	206	316	153	107	12.2	8015	7169	40606
2024	70	202	222	329	161	114	14.2	9284	8420	48923
2034	80	197	230	330	163	119	14.6	10182	9342	55887
2044	90	154	237	331	165	125	16.8	11067	10212	62441
2054	100	152	241	328	165	129	17.0	11756	10956	68338
2064	110	120	243	322	164	133	19.3	12315	11478	73149

Snowden

100% DF

Metased

DF series

START OF SIMULATION PERIOD

YEAR	AGE	NO OF TREES	BA	SDI	CCF	TOP HT	QMD	TOTAL CU FT	MERCH CU FT	MERCH BD FT
1994	40	240	138	232	148	87	10.3	4002	3502	18400
2004	50	213	172	274	170	96	12.2	5386	4833	25748
2014	60	258	197	303	185	103	11.8	6513	5830	31809
2024	70	206	215	317	192	109	13.8	7422	6735	37782
2034	80	285	227	328	196	113	12.1	8155	7468	42501
2044	90	206	238	333	199	117	14.5	8808	8083	46874
2054	100	228	244	335	199	120	14.0	9299	8550	50555
2064	110	166	250	335	199	123	16.6	9733	8973	53699

Snowden

100% PP

Metased

DF series

START OF SIMULATION PERIOD

YEAR	AGE	NO OF TREES	BA	SDI	CCF	TOP HT	QMD	TOTAL CU FT	MERCH CU FT	MERCH BD FT
1994	40	240	138	232	111	87	10.3	4370	3776	20300
2004	50	216	172	274	132	100	12.1	6115	5416	29472
2014	60	264	195	302	145	108	11.6	7515	6742	37997
2024	70	211	209	312	152	114	13.5	8543	7749	44676
2034	80	289	218	319	156	120	11.8	9395	8602	51069
2044	90	208	225	319	158	123	14.1	10118	9351	56479
2054	100	228	228	316	158	127	13.5	10643	9864	60937
2064	110	165	230	311	157	130	16.0	11110	10340	65137

Snowden

100% GF

Basalt

WRC series

START OF SIMULATION PERIOD

YEAR	AGE	NO OF TREES	BA	SDI	CCF	TOP HT	QMD	TOTAL CU FT	MERCH CU FT	MERCH BD FT
1994	40	240	138	232	167	87	10.3	4573	4022	21300
2004	50	211	172	273	196	96	12.2	6225	5461	29502
2014	60	385	199	308	219	104	9.7	7786	6996	38998
2024	70	296	221	328	236	111	11.7	9252	8419	48378
2034	80	349	236	341	245	118	11.1	10524	9635	57062
2044	90	270	249	348	253	124	13.0	11738	10807	65631
2054	100	343	257	353	256	130	11.7	12779	11826	73678
2064	110	260	269	359	263	137	13.8	14048	13037	82992

Snowden

100% DF

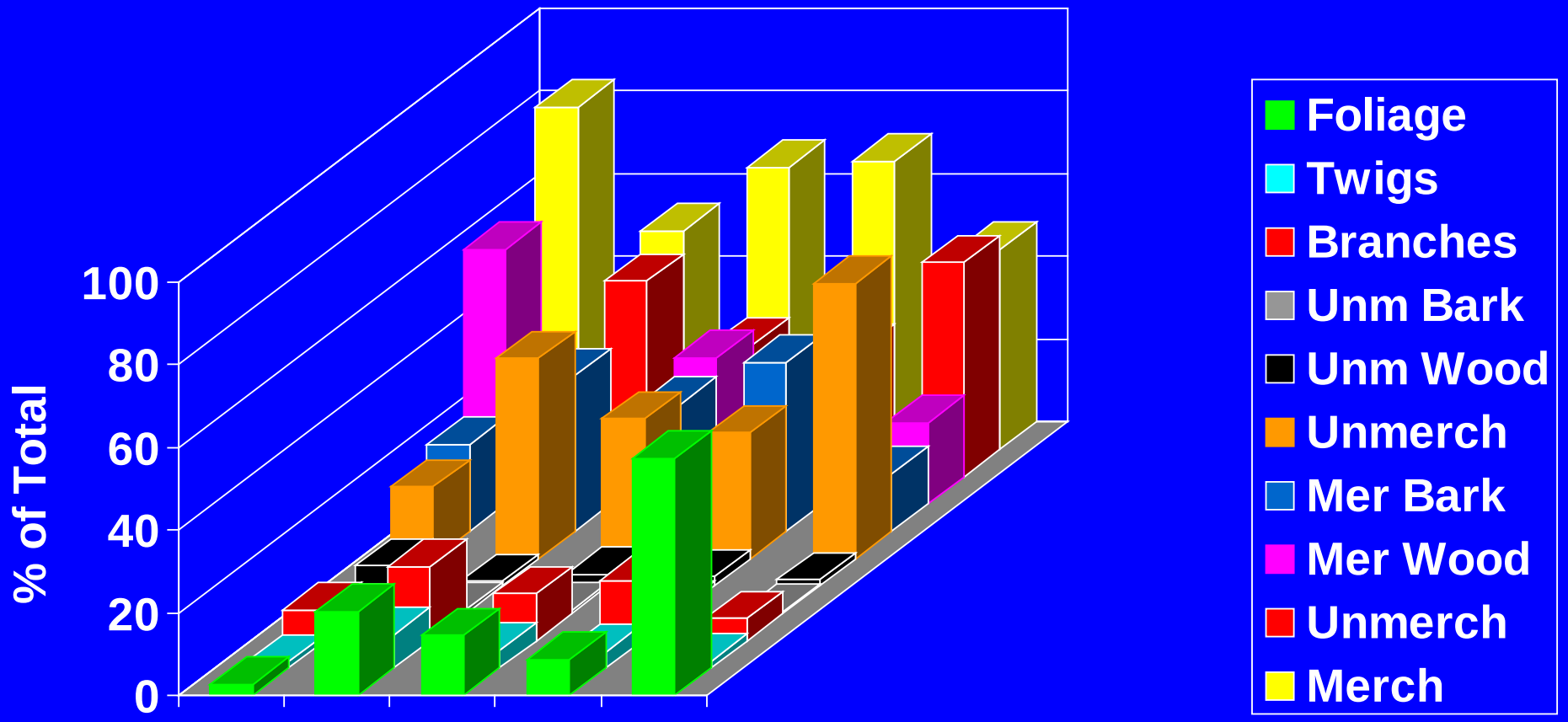
Basalt

WRC series

START OF SIMULATION PERIOD

YEAR	AGE	NO OF TREES	BA	SDI	CCF	TOP HT	QMD	TOTAL CU FT	MERCH CU FT	MERCH BD FT
1994	40	240	138	232	148	87	10.3	4002	3502	18400
2004	50	213	174	277	172	95	12.2	5424	4830	25612
2014	60	383	203	314	190	101	9.9	6693	6004	32721
2024	70	304	224	333	200	107	11.6	7743	7052	39404
2034	80	356	239	346	205	112	11.1	8631	7884	44825
2044	90	279	253	354	210	117	12.9	9518	8744	50943
2054	100	316	263	359	212	121	12.3	10238	9424	55833
2064	110	248	272	361	214	126	14.2	10939	10127	61258
2074	120	262	277	361	213	130	13.9	11501	10647	65585

Component Distribution: 100% DF Basalt, WRC Series



Component Distribution: 100% DF Basalt, WRC Series