Table 4.2. Crop codes, typical yield range, moisture content at which yield is reported, phosphorus (P) and potassium (K) crop removal values and demand levels, and target soil pH values for each crop.

Crop name	Crop code	Yield range (per acre)	Reporting moisture content[a] (%)	Crop removal P_2O_5 (lb/unit yield)	Crop removal K_2O (lb/unit yield)	P and K demand level	Target pH Mineral	Target pH Organic
Alfalfa, established	1	2.6–9.5 ton	DM	13	60	2	6.8	—
Alfalfa, seeding	2	1.5–2.5 ton	DM	13	60	2	6.8	—
Apple, establishment[b]	60	all	fresh	—	—	2	6.5	—
Asparagus	3	2,000–4,000 lb	fresh	0.0033	0.0067	3	6	5.6
Barley, grain	74	25–100 bu	14.5	0.4	0.35	1	6.6	5.6
Barley, grain + straw[c]	4	25–100 bu	—	—	—	1	6.6	5.6
Barley, straw[d]	—	1–3 ton	DM	10	32	—	—	—
Bean, dry (kidney, navy)	5	10–40 cwt	18	1.2	1.6	2	6	5.6
Bean, lima	6	2,000–5,000 lb	fresh	0.0086	0.017	2	6	5.6
Bean, snap	44	1.5–6.5 ton	fresh	5	20	2	6.8	5.6
Beet, table	7	5–20 ton	fresh	1.3	8	3	6	5.6
Blueberry, establishment[b]	61	all	fresh	—	—	2	5.6	5.4
Brassica, forage	8	2–3 ton	DM	10	48	2	6	5.6
Broccoli	9	4–6 ton	fresh	2	8	3	6	5.6
Brussels sprouts	10	4–6 ton	fresh	3.2	9.4	3	6	5.6
Buckwheat	11	1,200–2,000 lb	~15	0.013	0.013	1	5.6	5.4
Cabbage	12	8–30 ton	fresh	1.6	7.2	3	6	5.6
Canola	13	30–50 bu	8	1.1	2	1	5.8	5.6
Carrot	14	20–30 ton	fresh	1.8	9.6	3	5.8	5.6
Cauliflower	15	6–8 ton	fresh	2.9	7.1	3	6	5.6
Celery	16	25–35 ton	fresh	3.3	10	3	6	5.6
Cherry, establishment[b]	62	all	fresh	—	—	2	6.5	—
Clover, red	42	1–6.5 ton	DM	13	60	1	6.3	5.6
Corn, grain	17	70–290 bu	15.5	0.38	0.29	1	6	5.6
Corn, popcorn	38	60–80 bu	~14	0.36	0.29	2	6	5.6
Corn, silage	18	10–40 ton	65	3.6	8.3	2	6	5.6
Corn, stover[d]	—	1–5 ton	DM	4.6	32	—	—	—
Corn, sweet	19	2–10 ton	fresh	3.3	6	2	6	5.6
Cranberry, establishment[b]	63	all	fresh	—	—	2	5.6	5.4
CRP, alfalfa	66	—	—	0	0	2	6.6	—
CRP, grass	68	—	—	0	0	1	5.6	5.4
CRP, red clover	67	—	—	0	0	1	6.3	5.6
Cucumber	20	5–10 ton	fresh	1.2	3.6	3	5.8	5.6
Flax	21	20–40 bu	9	0.67	0.67	1	6	5.6
Ginseng	22	1,000–3,000 lb	DM	0.0075	0.03	3	—	—

Table 4.2 continued. Crop codes, typical yield range, moisture content at which yield is reported, phosphorus (P) and potassium (K) crop removal values and demand levels, and target soil pH values for each crop.

Crop name	Crop code	Yield range (per acre)	Reporting moisture content[a] (%)	Crop removal P_2O_5 (lb/unit yield)	Crop removal K_2O (lb/unit yield)	P and K demand level	Target pH Mineral	Target pH Organic
Grape, establishment[b]	79	all	fresh	—	—	2	6.5	5.6
Grass, hay[e]	84	0.5–8 ton	DM	15	55	1	6	5.6
Grass, sod for turf, establishment	45	all	—	—	—	1	6	5.6
Grass, reed canarygrass	41	4–7 ton	DM	7.3	33	1	6	5.6
Grass, switchgrass	85	1–5 ton	DM	12	20	1	6	5.6
Hop	86	1,000–1,500 lb	fresh	—	—	1	5.8	—
Lettuce	23	15–20 ton	fresh	2.3	9.1	3	5.8	5.6
Lupine	24	40–60 bu	~16	1	1.2	1	6.3	5.6
Melon	25	8–10 ton	fresh	4.4	16	3	5.8	5.6
Millet	26	40–60 bu	10	0.4	0.4	1	5.6	5.4
Mint, oil	27	35–55 lb	—	1.1	4.4	3	—	5.6
Oat, grain	75	30–120 bu	14	0.29	0.19	1	5.8	5.6
Oat, grain + straw[c]	28	30–120 bu	—	—	—	1	5.8	5.6
Oat, straw[d]	—	1–3 ton	DM	9.4	47	—	—	—
Onion	31	400–600 cwt	fresh	0.12	0.26	3	5.6	5.4
Pasture, grass[e]	33	0.5–5 ton	DM	15	55	1	6	5.6
Pasture, ≤ 30% legume-grass	34	0.5–5 ton	DM	13	51	1	6	—
Pasture, > 30% legume-grass	83	0.5–5 ton	DM	13	60	1	6.3	5.6
Pasture, unimproved	32	1–4 ton	DM	16	36	1	6	5.6
Pea, canning	35	1,000–6,000 lb	fresh	0.0046	0.0092	2	6	5.6
Pea, chick/field/cow	36	1–2 ton	10	20	24	2	6	5.6
Pepper	37	8–10 ton	fresh	1.1	5.6	3	6	5.6
Potato[f]	39	250–650 cwt	fresh	0.12	0.5	4	5.2/6.0	5.2/5.6
Pumpkin	40	15–20 ton	fresh	2.9	6.3	3	6	5.6
Raspberry, establishment[b]	64	all	fresh	—	—	2	6.5	5.6
Rye, grain	76	15–70 bu	14	0.41	0.31	1	5.6	5.4
Rye, grain + straw[c]	43	15–70 bu	—	—	—	1	5.6	5.4
Rye, straw[d]	—	1–2 ton	DM	3.7	21	—	—	—
Rye, winter, silage	87	2–3 ton	DM	18	80	1	5.6	5.4
Small grain silage[g]	81	2.0–3.5 ton	DM	11	44	1	6	—
Small grain silage, underseeded with alfalfa[g]	29	2.0–3.5 ton	DM	11	44	1	6.8	—
Small grain & legume silage[g,h]	82	2.0–3.5 ton	DM	11	44	1	6	—
Small grain & legume silage, under-seeded with alfalfa [g,h]	30	2.0–3.5 ton	DM	11	44	1	6.8	—

Table 4.2 continued. Crop codes, typical yield range, moisture content at which yield is reported, phosphorus (P) and potassium (K) crop removal values and demand levels, and target soil pH values for each crop.

Crop name	Crop code	Yield range (per acre)	Reporting moisture content[a] (%)	Crop removal P_2O_5	Crop removal K_2O	P and K demand level	Target pH Mineral	Target pH Organic
				lb/unit yield	lb/unit yield			
Sorghum, grain	46	50–100 bu	14	0.4	0.4	1	5.6	5.4
Sorghum-sudan, forage	47	5–7 ton	65	15	60	1	5.6	5.4
Soybean, grain	48	15–105 bu	13	0.8	1.4	1	6.3	5.6
Soybean, grain + straw[c]	77	15–105 bu	—	—	—	1	6.3	5.6
Soybean, straw[d]	—	2–4 ton	DM	5.4	19	—	—	—
Spinach	49	4–6 ton	fresh	4	10	3	6	5.6
Squash	50	12–16 ton	fresh	2.8	6.4	3	6	5.6
Strawberry, establishment[b]	65	all	fresh	—	—	2	6.5	5.6
Sunflower	51	500–4,000 lb	10	0.012	0.024	1	6	5.6
Tobacco	52	1,600–2,800 lb	cured leaf	0.0091	0.057	3	5.8	5.6
Tomato	53	20–25 ton	fresh	1.8	8	3	6	5.6
Trefoil, birdsfoot	54	1.5–5.5 ton	DM	13	60	1	6	5.6
Triticale, grain	55	1,000–5,000 lb	~13	0.011	0.0092	1	6	5.6
Triticale, grain + straw[c]	80	1,000–5,000 lb	—	—	—	1	6	5.6
Triticale, straw[d]	—	1–2 ton	DM	3.7	21	—	—	—
Truck crops	56	all	fresh	—	—	3	6	5.6
Vetch, crown/hairy	57	2–3 ton	DM	16	48	1	6	5.6
Wheat, grain	78	20–120 bu	13.5	0.5	0.35	2	6	5.6
Wheat, grain + straw[c]	58	20–120 bu	—	—	—	2	6	5.6
Wheat, straw[d]	—	1.5–3.5 ton	DM	6	28	—	—	—
Wildlife food plot, corn/forage brassicas	69	—	—	—	—	1	6	—
Wildlife food plot, legume-grass pasture	70	—	—	—	—	1	6	—
Wildlife food plot, oats/wheat/rye	71	—	—	—	—	1	6	—
Wildlife food plot, soybean	72	—	—	—	—	1	6	—
Wildlife food plot, sugar beet/turnip	73	—	—	—	—	1	6.3	—

[a] Reporting moisture content is the moisture content at which yield is reported. Dry matter (DM) = yield is reported on a dry matter basis; fresh = yield is reported on a fresh, as harvested basis; cured leaf = yield is sold/reported on a cured leaf basis.

[b] Lime recommendations for apples and cherries apply only to pre-plant tests. Adjustment of pH is impractical once an orchard is established. Other perennial fruit crops must also be limed or amended with an acidifying material and incorporated prior to establishment.

[c] Use when both grain and straw are removed.

[d] Straw and stover do not have a crop code because no nutrient application guidelines are provided. Yield ranges and crop removals for straw and stover are given for information only. Crop removals for straw are used in calculating the phosphate and potash fertilizer recommendations for small grains, grain + straw, see Table 7.4.

[e] Includes bromegrass, fescue, orchardgrass, ryegrass, and timothy.

[f] Use higher target pH for scab-resistant varieties and lower pH for varieties that are not scab resistant.

[g] Small grains include barley, oats, rye, triticale, and wheat.

[h] Legumes may include leguminous vegetables (pea, bean) and soybean, but not forage legumes (alfalfa, red clover).