

Index

• Numerics •

1-4-U, 2-4-ME S.B., 161
2-row barley, 44
2-row malt, 364
3-D (Duisberg, Dortmund,
Düsseldorf) Export, 217
6-row barley, 44
6-row malt, 364
50-point system, 335

• A •

AAUs (alpha acid units),
58–60
Abbey Ale yeast, 389
abbey beer, 198
ABV (alcohol by volume), 24,
71–72
ABW (alcohol by weight), 24,
71–72
acetaldehyde, 327, 329
acetic aromas and taste,
328–329
acetobacter bacteria, 323
Acid Blend packets, 276
acid tests, 96
acidic pH, 75
Activator packs, 69
additives, 92–93
adjunct grains, 45, 47,
368–369
adjunct-laden brews, 314
adjuncts, 81–84, 292
Admiral hops, 371
advanced liquid yeast,
384–385
aftermash procedures,
133–134
aftertaste, 316
aging process, 13
AHA (American Homebrewers
Association), 3, 11, 333
Ahtanum hops, 371

Ain't Monkin' Around Dubbel,
199
airlock, 19, 21, 27
airspace, 140
alcohol by volume (ABV), 24,
71–72
alcohol by weight (ABW), 24,
71–72
alcohol content, 105, 321
Ale recipes
 American Amber Ale (10-b),
 168–169
 American Brown Ale (10-c),
 170–171
 American India Pale Ale
 (IPA) (14-b), 191–192
 American Pale Ale (10-a),
 166–167
 Baltic Porter (12-c), 178–179
 Belgian Dark Strong Ale
 (18-e), 204–205
 Belgian Golden Strong Ale
 (18-d), 202–203
 Belgian Pale Ale (16-b),
 196–197
 Brown Porter (12-a),
 174–175
 Dry Stout (13-a), 180–181
 Dubbel (18-b), 198–199
 English India Pale Ale (IPA)
 (14-a), 189–190
 English-Style Barley Wine
 (19-b), 208–210
 Extra Special/Strong Bitter
 (E.S.B.) (8-c), 160–161
 Foreign-Style Stout (13-d),
 184–185
 Imperial India Pale Ale (IPA)
 (14-c), 192–194
 Imperial Stout (13-f),
 186–188
 Irish Red Ale (9-d), 162–163
 labels, 210
 Northern English Brown Ale
 (11-c), 172–173
 Old Ale (19-a), 206–207
 Robust Porter (12-b), 177
 Strong Scotch Ale (9-e),
 164–165
 Sweet Stout (13-b), 182–183
 Tripel (18-c), 200–201
 White (Wit)(16-a), 194–196
Ale yeast, 64, 66
Ales, 44, 392. *See also* Ale
 recipes
 alfalfa honey, 274
 alkaline pH, 75
 all-grain brewing, 128–132
 alligator seed, 194
 all-malt extracts, 49
 allspice, 89
 alpha acid content, 55–56
 alpha acid units (AAUs),
 58–60
 alpha-amylase, 119
 Altbiers, 242
 Alterior Motive, 243
 alternative primers, 146–147
 Amarillo hops, 371
 Amber Waves, 169
 American Ale Yeast Blend,
 388
 American Amber Ale (10-b),
 168–169
 American Brown Ale (10-c),
 170–171
 American Dark Lager (4-a),
 222–223
 American Hefeweizen Ale
 yeast, 389
 American Homebrewers
 Association (AHA), 3, 11,
 333
 American hops, 61
 American II yeast, 381
 American India Pale Ale (IPA)
 (14-b), 191–192
 American Lager yeast, 391
 American Pale Ale (10-a),
 166–167

- American Premium Lager (1-c), 212–213
 - American Society of Brewing Chemists, 317
 - American Wheat (6-d), 238–239
 - American yeast, 381, 382
 - Americas, 44
 - ammonia, 35
 - amylase enzyme, 92
 - Anglo style, 267
 - anise, 89
 - Anne's Choice Christmas Ale, 255
 - antibacterial agents, 75–76
 - antioxidant, 96
 - aphrodisiacs, 272
 - apple juice, 269–270
 - Apple Wine (28-c), 268
 - apples, 266–267
 - Apprentice Judge, 339
 - Arlington Ale No. 33, 235
 - aroma hops, 56, 60
 - aromas, 311–313, 327–328.
 - See also flavors and aromas
 - arrested fermentation, 268
 - Arvidson, Dennis and Cindy, 221–222
 - ascorbic acid, 95
 - aseptic techniques, 344
 - Ashman, Todd, 173
 - Asia, 44
 - Association of Brewers, 339
 - astringency, 316, 324–325, 329
 - attenuation rate, 379
 - Aurora hops, 371
 - auto siphon, 354
 - autolysis, 111, 325
- B •**
- bacteria, 34–35
 - bad body, 331
 - ball fittings, 150
 - Balling scale, 24
 - Baltic Porter (12-c), 178–179
 - Bamberg Smoke beer, 256
 - Bamberger Rauchbier, 256
 - banana esters aromas, 327
 - banking yeast, 343–345
 - barley, 5, 43–44
 - Barley Wines, 145, 208, 358
 - barleymalt. *See* malts
 - base grains, 363–366
 - base malted grain, 45
 - Basically Bock, 229
 - batch sizes, 3, 131–133
 - bathtub booze, 1
 - Bavarian brewers, 64
 - Bavarian Weizenbier, 246
 - Bavarian Wheat yeast, 382
 - Bavarian yeast, 383
 - Beck beer, 228
 - Beech Beer, 257
 - beer
 - aromas, 327–328
 - calibration, 335
 - cloudy, 331
 - commercial, 11
 - filters, 354–355
 - flutes, 305, 306
 - green, 45
 - kegs, converting to brewpots, 351
 - kitchen-sink category, 260
 - nonalcoholic, 72
 - non-toxic, 288
 - organic, 286–287
 - styles, HBUs for, 60
 - taste, 328
 - transparent, 91
 - yeast, 34, 63
 - beer clean, 307
 - Beer Flavor Wheel, 317
 - beer gravity, 58
 - Beer Judge Certification Program (BJCP), 333, 339–340
 - beer stone, 66, 354
 - bees, 273
 - Belgian Abbey, 197, 202–203
 - Belgian Abbey yeast, 384
 - Belgian Ale yeast, 389
 - Belgian Ardennes yeast, 385
 - Belgian candi sugar, 84
 - Belgian Dark Strong Ale (18-e), 204–205
 - Belgian Golden Ale yeast, 390
 - Belgian Golden Strong Ale (18-d), 202–203
 - Belgian Lambic blend yeast, 385
 - Belgian Pale Ale (16-b), 196–197
 - Belgian Saison yeast, 385
 - Belgian specialty beers, 34
 - Belgian Strong Ale yeast, 384
 - Belgian Trappist yeast, 385
 - Belgian Wheat yeast, 385
 - Belgian Witbier, 87
 - Belgian Witbier yeast, 385
 - Belgian Yeast, 388–390
 - bench-cappers, 23, 141
 - bentonite, 94
 - Berliner Weisse, 145
 - Berliner Weisse-style goblet, 305
 - Best-of-Show round, 335
 - beta-amylase, 119
 - bicarbonate, 77
 - Biere Blanche, 194
 - Big Apple Punch, 272
 - bines, 347
 - Biscuit Malt, 367
 - bitter taste receptors, 314
 - bittering hops, 56, 58–61, 110
 - bittering potential, 370
 - bitterness, 108
 - bitters. *See* Extra Special/Extra Strong Bitter
 - bittersweet apples, 266
 - BJCP (Beer Judge Certification Program), 333, 339–340
 - Black malt, 368
 - blackstrap molasses, 83
 - bleach, 36
 - Bliss, Brian, 203
 - Blonde Ale (6-b), 236–237
 - Bock beer, 228
 - Bockmore, Jerry, 165–166
 - body, 316
 - Bohemian yeast, 383
 - Bohemian-Style Pilsener (2-b), 218–219
 - boiling, 34, 56, 110
 - Boobs Barley Wine, 209
 - BOPs (Brew On Premises), 13
 - Boston Beer Company, 16
 - bottle brushes, 20, 22

- bottle cappers, 20, 23, 141
 bottle caps, 15, 39, 147–148, 324
 bottle holders, 39
 bottle rinsers, 20, 22
 bottled water, 76, 78–79
 bottles
 choosing, 135–136
 cost of, 20
 exploding, 276
 glass, 22
 size requirements for
 competitions, 336
 soaking, 138
 bottling
 crowns, 147–148
 kegged beer, 142–144
 priming, 144–147
 process, 136–142
 bottling buckets, 22, 349
 bottling tubes, 20, 22, 140
 bottom-fermenting yeast, 390–391
 bouquet, 311
 Boyce, Chuck, 209
 bracteole, 52
 braggot, 275
 branding, 361
 Brass Baltics Imperial Porter, 179
 Brew On Premises (BOPs), 13
 brew spoons, 19–20
 brewer's chocolate, 260
 brewer's licorice, 186, 260
 brewing. *See* homebrewing
 brewing purists, 146
 brewing software, 356
 brewing timeline, 14
 Brewmistress I.P.A., 189–190
 Brewpots, 17, 19, 20
 brewpubs, 12
 Bridge House Bitter, 161
 Briess, 362
 British Ale yeast, 386
 British ales, 79
 British cellar temperature, 304
 British II yeast, 381
 British yeast, 381
 British-style Ales, volumes for, 156
 Brix reading, 355
 brix scale, 49
 Brockington, David and Melinda, 185, 187–188
 Brooklyn Brewery, 284
 Brown Porter (12-a), 174–175
 brown sugar, 83
 bruhmalt, 362
 Brune Dream, 205
 brushes, 20, 22, 26–27
 bubblegum aromas, 327
 bubblers, 21
 buckwheat, 295, 296
 Budvar yeast, 383
 Burko, Robert, 197
 Burton Ale yeast, 387
 Burton salts, 79, 92
 Burtonizing, 79
 Burton-on-Trent beers, 79
 butane lighters, 344
 butter flavors, 322–323
 butterscotch flavor, 322–323
 Butt-Scratcher, 213
 Buxton Brown of Derbyshire County, 173
- C •
- calcium, 77
 calcium carbonate, 31, 77, 268
 calcium chloride, 31, 268
 calcium sulfate, 78
 calibration beers, 335
 California Ale V yeast, 388
 California Ale yeast, 386
 California Common beer (7-b), 240–241
 California yeast, 383
 Campbell, Jim, 165
 Campden tablets, 278
 canes, 27
cannabis plant, 52
 Cannon, James, 257
 cappers, 20, 23, 141
 caps, 15, 39, 147–148, 324
 caramel malts, 109, 323, 361, 366–367
 CaraMunich, 365
 CaraPils malt, 331
 CaraVienne, 365
 caraway, 89
 carbohydrates, 44
 carbon dioxide (CO₂), 54, 63–64, 142, 149–150
 carbon filters, 76
 carbonate, 77
 Carbonater cap, The, 142–143
 carbonation, 145, 154–156, 330
 carboy brushes, 26–27
 carboys, 26–27
 cardamom, 89
 cardboard cases, 138
 cardboard flavors, 324
 carrageen, 94
 cartridge type filters, 355
 Cascade hops, 372
 caustics, 35
 CBW (Concentrated Brewer's Wort), 362
 Cedar Mountain Brown Ale, 171
 celiac disease, 293, 295
 Centennial hops, 372
 cereal grains, 44, 122
 Certified Judge, 339
 chalk. *See* calcium carbonate
 chalky water, 325
 Challenger hops, 372
 Champagne yeasts, 278
 chemistry of water, 74
 Cherry Ale, 251
 chill haze, 331
 Chinook hops, 59, 372
 chloride, 77
 chlorine, 36, 75, 150
 chlorophenols, 76, 323
 chocolate, 85, 260
 Chocolate Chambord Stout, 255
 chocolate malt, 172, 367
 Christmas/Winter/Specialty Spiced Beer (21-b), 254–255
 Cider, 71, 265–272
 Cider yeast, 393–394
 cinnamon, 89
 Cistercian monks, 198
 citric acid, 96
 clarifying, 93–95, 112, 141

- clarity, 313
 Clarré, 275
 Classic Dry Stout, 180
 Classic Irish-style Dry Stout, 180, 182
 cleaning. *See also* sanitation
 bottles, 38–39
 ecology and, 285
 glassware, 307–308
 cleansers, 35–37
 clover honey, 274
 cloves, 89
 Cluster hops, 372–373
 CO₂ (carbon dioxide), 54,
 63–64, 142, 149–150
 Coal Porter, 175
 cogeneration process, 284
 Colby's Cream Ale, 235
 color, 108, 313
 colored glass, 136
 Columbus hops, 373
 commercial beer, 11
 Common Cider (27-a), 267,
 270–271
 Common Perry (27-d), 268
 competitions
 50-point system, 335
 bottle size requirements,
 336
 entries, 334–337
 judges, 337–340
 from keg to bottle for,
 143–144
 overview, 333–334
 prizes, 335
 Samuel Adams LongShot, 16
 score sheets, 338
 soda bottles and, 143
 sponsors, 334
 swing-top bottles and, 142
 compost piles, 286
 compressed carbon dioxide
 gas cylinders, 147
 Concentrated Brewer's Wort
 (CBW), 362
 conditioning
 appearance problems,
 330–331
 recommended length of
 time for, 13
 secondary fermentation,
 111–115
 storage, 302
 tertiary fermentation,
 115–116
 contamination, 33
 Continental Lager, 214
 Continental style, 267
 conversion process, 118
 coolers, 350
 cooling water, 286
 Coors Brewing Company, 162
 copper finings, 94
 copper tubing, 349
 coriander, 89
 corn, 44, 46, 369
 corn sugar, 330
 corn syrup, 83
 costs, 19–20, 29, 358
 cotton balls, 344
 counterflow wort chillers, 32,
 356
 counterpressure bottle fillers,
 143–144, 354
 cracking, 46, 109
 craft breweries, 12
 Cream Ale (6-a), 234–235
 Cream Ale Yeast Blend, 388
 Cream City Abbey Ale, 197
 cream liqueurs, 147
 Cream Stout, 86, 182
 Crisp Malting, 362
 cross-contamination, 294
 crowns, 15, 39, 147–148
 Crystal hops, 373
 crystal malt, 109, 331,
 366–367. *See also*
 caramel malts
 culinary apples, 266
 Curcio, Philip, 272
 cysers, 275
 Czech Budejovice Lager
 yeast, 390
 Czech Pils yeast, 383
- D •
- D & J Stout, 183
 Dad's Beer, The, 167
 Dampfbier, 240
 Dangerously Delicious Dunkel
 Weizen, 247
 Daniel, Christina, 243
 Daniel, Steve, 171, 213, 223,
 243
 Daniels, Ray, 247
 Danish II yeast, 383
 Danish yeast, 382
 Dark Vader Lager, 223
 decanting, 141, 305
 decoction, 122
 Def, Dum, and Blonde, 237
 degrees Plato, 24
 demarara sugar, 84
 Dempsey, Steve, 231
 Dennis, Tom, 179, 205
 Denny, Jack H., 239
 density, 24, 58. *See also*
 gravity
 Dextrin malt, 365
 dextrose, 82, 84, 139, 145–146
 diacetyl, 312, 322, 327, 328
 diastatic power, 297
 Dickenson, Norman, 217
 dietary restrictions, 5
 D.I.G.I.B.I.Y. *See* do it, grow it,
 build it yourself
 digital thermometers, 353
 Dilldine, Jim, 171
 dimethyl sulfide (DMS),
 326–327, 329
 dimpled pint mug, 306
 Dingemans, 362
 dip tubes, 153
 disaccharides, 266, 274
 dishwashers, 38
 distilled water, 78
 DME (dry malt extract), 50,
 146
 DMS (dimethyl sulfide),
 326–327, 329
 do it, grow it, build it yourself
 (D.I.G.I.B.I.Y.)
 equipment, 348–352
 grain, 345–346
 hops, 343–348
 yeast, 343–345
 Dominion Day Oktoberfest,
 221
 Doppelbock (5-c), 230–231
 Doppelbock Two, 231

- Dortmunder/European-Style
Export (1-e), 216–217
dough-in, 128
Do-Well Trappist Tripel, 201
draft style Cider, 268
drilled rubber stoppers, 19, 22
dry beer yeast, 380
Dry English Ale yeast, 386
dry hopping, 54, 112, 160
Dry Ice 'n' Weizen, 245
dry malt extract (DME), 50,
146
dry mead, 276
Dry Stout (13-a), 180–181
dry yeast, 67–68
dry/puckering mouthfeel,
324–325
dual gauge tank regulators,
150
Dubbel (18-b), 198–199
Dudley Brewright Amber Ale,
169
Duisberg, Dortmund,
Düsseldorf (3-D) Export,
217
Dunkelweizen (15-b), 246–247
Durst, 362
Düsseldorfer-Style Altbier
(7-c), 242–243
- **E** ●
- Early Times Old Ale, 259
East Coast Ale yeast, 386
East Kent Goldings hops, 55
ecological/environmental
issues
organic brewing, 286–292
overview, 283–284
recycle, 286
reduce, 284–285
reuse, 285–286
Edinburgh Scottish Ale yeast,
387
Egypt, 44
Ein, Zwei, Drei Weizen, 249
electrical heat, 284
elm, 52
endosperm, 44
energizers, yeast, 71
energy usage, 284
English Ale yeast, 386
English Cider (27-b), 267
English India Pale Ale (IPA)
(14-a), 189–190
English Kent hops, 194
English pub glass, 305
English-Style Barley Wine
(19-b), 208–210
enteric aromas, 327
enterobacteria, 76
entire, 174
Entirely Yours, 175
entries, 334–337
enzymes, 44
Epsom salt, 78
equipment
for advanced brewers, 28–32
for beginning brewers,
19–25, 100
cleaning, 37–38
gluten-free brewing and, 294
immersion wort chillers,
348–349
for intermediate brewers,
25–28
kegging, 149–151
lagering cellar, 351–352
large-volume brewpot, 351
lauter tun, 349–351
overview, 12–13, 17
retailers, 18
E.S.B. *See* Extra Special/
Strong Bitter
esoteric brews, 85–87
Ester the Molester, 203
estery, 64
ethanol, 63
European Ale yeast, 387
European hops, 61
European Lagers, 156
European yeast, 382
evaluating brew
aromas, 311–313
homebrew vocabulary,
317–318
overview, 309–310
reflections, 317
seeing, 313
taste, 314–316
Exchequer Pale Ale, 189
exotic flavorings, 85–87
exploding bottles, 276
external thermostats, 352
Extra Special/Strong Bitter
(E.S.B.) (8-c), 160–161
extracts. *See also* malts
gluten-free brewing, 294–296
hop, 53
liquid smoke, 87, 165,
256–257
oak chips/oak, 86
- **F** ●
- faceted dimpled mug, 305
FAQs (frequently asked
questions), 357–360
farmhouse style Cider, 268
farming yeast, 343
Fat Brothers Original
American, 241
faucets, 23
fermentable sugars, 66
fermentation
alcohol content, 71–72
cycles, 65
defined, 13
dry yeast, 67–68
fungi, 63–64
hydrometer readings of, 136
liquid yeast, 68–69
mead and, 278–279
never-ending, 321–322
no fermentation, 320–321
overview, 63, 111, 319
priming ingredients, 144
propagating yeast, 69–70
secondary, 111–115
stuck, 321
tertiary, 115–116
variables, 65–67
yeast energizers and
nutrients, 71
fermenters, 17, 21, 27
fermostats, 352
FG (final gravity), 24, 105
fill level, 140
filtering water, 74
filters, 76, 354–355
final alcohol potential, 24
final gravity (FG), 24, 105
finings, 93–95

- finish, 316
 - finished product, 301
 - finishing hops, 56, 110
 - First Gold hops, 373
 - first runnings, 123
 - First Wort Hopping (FWH), 56, 126
 - Flabby Abbey Not-So-Grande Reserve, 204
 - flaming, 344
 - flat beer, 330
 - flavoring hops, 56, 110
 - flavorings, 84–90
 - flavors and aromas
 - butter/butterscotch flavor, 322–323
 - chart, 326–329
 - dry/puckering mouthfeel, 324–325
 - harshness/hotness, 325
 - medicinal/plastic/smoky flavor, 323
 - metallic flavor, 325
 - papery/cardboard/sherry-like flavors, 324
 - skunk aroma, 325
 - sour/tart flavors, 323
 - sulfury odors, 326
 - vegetal flavors and aromas, 326
 - Fleming, Philip, 255
 - flocculation, 65, 381
 - fluorescent light, 325
 - fluoride, 76
 - foam control, 92
 - food-grade plastic, 21, 360
 - food-grade sanitizers, 36
 - Forbidden Fruit yeast, 385
 - force carbonating, 154
 - Foreign-Style Stout (13-d), 184–185
 - foretaste, 314
 - Formanek, Joe
 - Hannah's Ambrosia Imperial I.P.A., 193–194
 - Little Cathy's Blonde Ale, 237
 - Veronica's Nectar I.P.A., 191–192
 - Fountainhead Black Magic, 187
 - French Cider (27-c), 268
 - frequently asked questions (FAQs), 357–360
 - freshness scale, 58
 - fructose, 82
 - fruit, 86, 87, 146–147, 270
 - Fruit Beer (20), 250–251
 - Fruit Cider (28-b), 268
 - Fuggle, Richard, 373
 - Fuggles hops, 373
 - full-wort boils, 32, 128
 - fully modified malts, 120
 - fungi, 34–35
 - funnels, 26
 - fusel alcohol, 325
 - FWH (First Wort Hopping), 56, 126
- **G** •
- GA (Gravity Adjustment) factor, 58
 - Galena hops, 374
 - Gambrinus Malting, 362
 - garages, 302
 - gas heat, 284
 - gas inflow line, 150
 - gaskets, 142, 152–153
 - gelatin, 94
 - gelatinization, 46, 297
 - Genetically Modified Organisms (GMOs), 289
 - George Killian Lett's Irish Ale, 162
 - German Ale yeast, 380
 - German Ale/Kölsch yeast, 387
 - German Bock Lager yeast, 391
 - German Lager yeast, 240, 391
 - German Light Lagers, 214
 - German Purity Law, 368
 - German Wheat yeast, 385
 - German-Style Helles Bock/Maibock (5-a), 226–227
 - German-style Weizenbier, 246
 - germicidal lamp, 355
 - germs, 35
 - GFI (Ground Fault Interrupter) outlets, 355
 - Giffen, Paddy, 175, 181, 249
 - gingerroot, 89
 - Give Me Liberty, or . . . Else, 167
 - glass bottles, 22
 - glass carboys, 26–27, 139
 - glassware, 136, 307–308
 - gliadin protein, 293
 - gloves, 35, 36
 - glucose, 82
 - gluten intolerance, 293
 - gluten-free brewing
 - from all grain, 296–297
 - equipment and, 294
 - overview, 293–294
 - substituting safe ingredients, 294–296
 - yeast, 297–298
 - gluten-free grains, 291
 - glutenin protein, 293
 - gluten-sensitive enteropathy, 295
 - GMOs (Genetically Modified Organisms), 289
 - goblets, 306
 - goggles, 35, 36
 - Goldings hops, 374
 - Goliath Imperial Pale Ale, 193
 - grain astringency, 316
 - grain mills, 26, 28, 31
 - Grain of Paradise, 194
 - Grain-n-Beerit, 217, 219
 - grains
 - adjunct, 368–369
 - base, 363–366
 - gluten-free, 291
 - gluten-free brewing from, 296–297
 - kilning and milling, 46
 - malted, 363
 - malting, 44
 - mashing, 45
 - mixing with other grains, 45–46
 - organic brewing and, 290–291
 - overview, 43–44
 - producers of, 362–363
 - recycling, 286
 - roast-a-rama, 345–346
 - smoking, 346
 - specialty, 108–109, 366–368
 - Grand Master Judge, 340

- grape melomels, 282
gravity
 Barley Wine and, 208
 defined, 108
 hydrometers and, 24
 of Meads, 278
Gravity Adjustment (GA)
 factor, 58
Great American Beer Festival
 in Denver, 340
Great Western Malting, 362
Great Wheat, 239
green beer, 45
Griffith, Thomas, 231
grinders, 28
grist, 120
groats, 296
Grolsch bottles, 142
Ground Fault Interrupter
 (GFI) outlets, 355
gruit, 275
Guinness Stout, 180
Gullywasher, 213
gushers, 146
gypsum, 31, 78
- **H** •
- Hallertau Hersbrucker hops,
 375
Hallertau Mittelfruh hops, 375
Hallertauer hops, 55, 374
Hammaker, David G., 251
hands-on/off steps, 13
hangovers, 287
Hannah's Ambrosia Imperial
 I.P.A., 193–194
Hard Cider, 265
hard water, 76–77, 119–120,
 325
harshness, 325
harvesting yeast, 133–134
HBUs. *See* Homebrew
 Bitterness Units
HCU (Homebrew Color
 Units), 48
HDPE (high-density
 polyethylene), 21, 360
Head Brewers, 15
head retention, 313
heading compound, 92
heather tips, 90
Hefe-weizen, 244
Hefeweizen Ale yeast, 388
Hefeweizen IV Ale yeast, 389
heliarc welding, 351
Helles, 215
Helles Lager, 214
Helles/Maibock, 227
hemp, 52
Herb, Spice, and Vegetable
 Beer (21-a), 252–253
herbs, 90
Herrold, Ross, 225
high krausen, 65, 114
high-density polyethylene
 (HDPE), 21, 360
high-gravity beers, 145
high-gravity worts, 69
highly carbonated beers, 156
hippocras, 275
hobbies, 1, 18
Holland, Matthew, 219
Home Wine and Beer Trade
 Association (HWBTA),
 333
Homebrew Bitterness Units
 (HBUs), 59, 60
Homebrew Color Units
 (HCU), 48
homebrewing
 advanced
 all-grain brewing, 128–131
 batch sizes, 131–133
 harvesting yeast, 133–134
 mashing procedures,
 118–124
 overview, 117–118
 partial mashing, 124–127
 alternative brewing, 5
 beginner, 99–105
 clubs, 13, 334
 equipment, 12–13
 feedback, 5
 ingredients, 5, 14–15
 intermediate, 107–111
 overview, 11
 supply shops, 18
 timeline, 13–14
honey
 boiling, 278
 choosing for mead, 277–278
 defined, 82–83
 overview, 273–275
honeybees, 273
Honorary Master Judge, 340
Hooligan's Red, 163
hop bitterness, 315
hop character, 312
hop cones, 52
hop extract, 53
hop flavor, 315
hop flowers, 52–54
hop oils, 54
hop processors, 53
hop rhizomes, 347
hop zones, 55
hoplets, 53
hops
 Admiral, 371
 Ahtanum, 371
 Amarillo, 371
 American, 61
 aroma, 56, 60
 Aurora, 371
 bittering
 boiling times for, 110
 calculating AAUs, 59
 chart, 60–61
 defined, 56
 overview, 58
 utilization factor, 58–59
 Cascade, 372
 Centennial, 372
 Challenger, 372
 Chinook, 59, 372
 choosing, 347–348
 Cluster, 372–373
 Columbus, 373
 Crystal, 373
 dry hopping, 54, 112, 160
 drying and storing, 348
 East Kent Goldings, 55
 English Kent, 194
 European, 61
 extracts, 53
 First Gold, 373
 First Wort Hopping (FWH),
 56, 126
 flavoring, 56, 110
 flowers of, 52–54
 freshness, 57–58
 Fuggles, 373

- hops (*continued*)
- Galena, 374
 - Goldings, 374
 - growing, 347
 - Hallertau Hersbrucker, 375
 - Hallertau Mittelfruh, 375
 - Hallertauer, 55, 374
 - hybrids, 55
 - late-kettle, 56
 - Liberty, 375
 - Lublin, 375
 - Magnum, 375
 - Mount Hood, 55, 376
 - Newport, 376
 - noble, 56
 - Northdown, 376
 - Northern Brewer, 59, 376
 - Nugget, 376
 - Olympic, 55
 - organic brewing and, 291
 - overview, 51
 - oxidized, 57
 - Perle, 377
 - Pride of Ringwood, 55, 377
 - replacement, 61
 - Saaz, 55, 377
 - Santiam, 377
 - Simcoe, 377
 - stability of, 58
 - stale, 56
 - Super Styrian, 371
 - Target, 378
 - Tettnanger, 378
 - Vanguard, 378
 - varieties, 60–61, 109–110
 - Warrior, 379
 - whole-leaf, 53
 - Willamette, 379
- hotness, 325
- How Wheat It Is!, 239
- Howard, Rodney, 235
- Hugh Baird Malting Company, 362
- Humulus Lupulus*, 52
- husks, 44
- HWBTA (Home Wine and Beer Trade Association), 333
- hybrids, 55. *See also* mixed-style recipes
- hydrogen sulfide, 327–329
- hydrolyzed cornstarch, 82
- hydromel strength Mead, 276
- hydrometer readings, 104–105
- hydrometers
- ABV versus ABW, 71
 - with cylinder, 20
 - liquid density and, 24
 - taking fermentation readings with, 136
 - triple-scale, 23
- **J** •
- IBUs (International Bitterness Units), 59
- immersion wort chillers, 30, 32, 131, 348–349
- Imperial India Pale Ale (IPA) (14-c), 192–194
- imperial pint glass, 306
- Imperial Porter. *See* Baltic Porter
- Imperial Stout (13-f), 186–188
- incandescent light, 325
- India Pale Ale, 186
- Indiana Pale Ale, 191
- infusion mashing, 120
- ingredients. *See also* yeast
- basic, 5
 - flawed, 312
 - gluten-free brewing and, 294–296
 - hops, 370–379
 - intermediate brewers and, 108–111
 - malt, 362–370
 - organic, 287–288
 - priming, 144
- innovation, 3
- International Bitterness Units (IBUs), 59
- invert sugar, 83, 85
- iodine-based sanitizers, 36
- Iodophor, 150
- IPA. *See* American India Pale Ale; English India Pale Ale; Imperial India Pale Ale
- Irish Ale yeast, 386
- Irish moss, 94
- Irish Red Ale (9-d), 162–163
- Irish yeast, 381
- Irish-style Stout, 180
- isinglass, 94–95
- iso-alpha acids, 53
- isomerization, 53
- isopropyl alcohol, 344
- **J** •
- Ja, Das Ist ein Schnitzel Bock, 227
- Jack the Sipper, 207
- jacketing, 285
- Janowiak, John, 221
- Jealous Wit, 195
- judges
- levels of, 339–340
 - requirements for, 337–339
- juniper berries, 89
- **K** •
- Kamp, Steve, 163, 193, 261
- kegging
- carbonating procedures, 154–156
 - converting kegs to brewpots, 351
 - equipment, 149–151
 - from keg to bottle for competition, 143–144
 - plastic bottles and, 142–143
 - sanitizing and racking procedures, 151–154
 - tapping procedures, 156
- kettle adjuncts, 79
- kettle caramelization, 162, 168
- kettle hops, 56. *See also* bittering hops
- kettle-coagulant, 94
- Killer Winter Storm Candy Imperial Porter, 261
- kilning, 46–47, 108
- Kinvig, Dennis, 175
- kitchen
- faucets, 23
 - scales, 26, 28, 31
 - strainers, 26, 27
- kitchen-sink category beer, 260

kits, 49, 99
 Klasinski Baltic, 179
 Kölsch yeast, 384
 kristalklar, 244

● L ●

lab immersion thermometers,
 26, 28, 31
 labels
 for ale recipes, 210
 for lager recipes, 232
 for mixed-style recipes, 262
 self-stick, 344, 348
 lactic acid, 96
 lactic taste, 329
 lactobacillus bacteria, 323
 lactose, 82, 86
 Lady of the Morning, 225
 lag time, 66
 Lager recipes
 American Dark Lager (4-a),
 222–223
 American Premium Lager
 (1-c), 212–213
 Bohemian-Style Pilsener
 (2-b), 218–219
 Doppelbock (5-c), 230–231
 Dortmunder/European-Style
 Export (1-e), 216–217
 German-Style Helles
 Bock/Maibock (5-a),
 226–227
 label ideas, 232
 Märzen/Oktobertfest (3-b),
 220–222
 Münchner-Style Helles (1-d),
 214–215
 Munich Dunkel (4-b),
 224–225
 overview, 211
 Traditional Bock (5-b),
 228–229
 Lager yeast, 64, 66
 lagering cellar, 351–352
 Lagers
 chart, 392–393
 European, 156
 secondary fermentation
 and, 112
 Lake, Denny, 271

lapping, 156
 large-volume brewpots, 30,
 351
 Larsen, Rich, 201, 209
 Late Hop Essence, 54
 late-kettle hops, 56
 lauter tun, 30, 123, 128,
 349–351
 lautering, 126, 133–134
 layered taste, 315
 League City Alt Part 3, 243
 League City Dark, 223
 Leftover Strawberry Ale, 251
 Liberty hops, 375
 licorice, 86, 186, 260
 light molasses, 83
 light-struck, 325, 328
 liqueurs, 87, 146–147
 liquid culture dry Mead
 yeasts, 278
 liquid density, 24
 liquid malt extract, 50
 liquid smoke extract, 87, 165,
 256–257
 liquid yeast
 bottom-fermenting, 382–383
 cultures, 111
 versus dry yeast, 67–69
 top-fermenting, 380–382,
 386–388
 Little Cathy's Blonde Ale, 237
 London Ale yeast, 387
 London III yeast, 381
 London-Rich yeast, 381
 London-style Stout, 182
 London-Style Sweet Stout, 86,
 184
 LongShot Variety Pack, 16
 Lovibond scale, 48
 Lubinsky, Jay, 271
 Lublin hops, 375
 lupulin glands, 52, 347
 lye, 36

● M ●

Macke's Son Stout, 183
 Mad River Brewing Company,
 284
 magnesium, 77
 magnesium sulfate, 78

Magnum hops, 375
 malic acid, 96
 malignant hyperthermia, 110
 Malt, Cargill, 362
 malt character, 312
 malt syrup, 14, 43
 malted wheat, 366
 malto-dextrin, 93, 331
 maltose, 44
 maltose sugars, 43, 146
 malts
 2-row, 364
 6-row, 364
 Biscuit, 367
 Black, 368
 caramel, 109, 323, 361,
 366–367
 CaraPils, 331
 chocolate, 172, 367
 Crisp, 362
 crystal, 109, 331, 366–367
 Dextrin, 365
 extracts, 47–50, 369–370
 fully modified, 120
 grains
 adjunct, 368–369
 base, 363–366
 kilning and milling, 46–47
 mashing, 45
 mixing with other grains,
 45–46
 overview, 44
 producers of, 362–363
 specialty, 366–368
 non-organic, 291
 organic, 291
 overview, 43
 Pale Ale, 364
 Paul's, 363
 peat-smoked, 256
 Pilsener, 364
 Rye, 368
 Smoked, 368
 Victory, 367
 Vienna, 365
 maltsters, 44
 maple syrup, 83
 Maris Otter brand, 362
 Märzen/Oktobertfest (3-b),
 220–222
 mash tun, 45

- mashing
 - aftermash or mash-outs, 122–124
 - cereal grain, 122
 - defined, 28, 45
 - gluten-free grains, 297
 - overview, 118
 - partial mashing, 124–127
 - types, 120–122
 - variable of, 119
 - water and, 119–120
 - mashing brewpots, 30
 - mashing sparge arms, 355–356
 - mash-outs, 133–134
 - mason jars, 343
 - mass-market beer, 11
 - Master Judge, 339
 - maturation period, 359
 - Meads
 - fermenting, 278–279
 - history of, 274
 - honey, 273–278
 - overview, 273
 - petillant, 276
 - Progressive, 279
 - recipes, 280–282
 - sack strength, 276
 - semi-sweet, 276
 - sparkling, 276
 - standard strength, 276
 - sweet, 276
 - yeast, 393–394
 - medicinal flavors, 323
 - Meilgaard Beer Flavor Wheel, 318
 - Meilgaard, Dr. Morton, 317
 - melomel, 275
 - Meltdown Lager, 215
 - Memphis Steamer, 241
 - meniscus effect, 24
 - Merisco, Mark, 259
 - Mesopotamia, 44
 - metallic taste, 325, 328, 329
 - metals, 78
 - metheglin, 275
 - Meussdoerffer, 362
 - Mexican Lager yeast, 391
 - microbes, 34
 - Microbial Fuel Cell, 284
 - microbreweries, 1, 12
 - midtaste, 314
 - Milk Stout, 86
 - Miller, Dave, 215
 - millet, 44
 - milling, 46–47, 109
 - mineral ions, 77–78
 - mineral salts, 77
 - mint, 90
 - mixed-style recipes
 - American Wheat (6-d), 238–239
 - Blonde Ale (6-b), 236–237
 - California Common Beer (7-b), 240–241
 - Christmas/Winter/Specialty Spiced Beer (21-b), 254–255
 - Cream Ale (6-a), 234–235
 - Dunkelweizen (15-b), 246–247
 - Düsseldorfer-Style Altbier (7-c), 242–243
 - Fruit Beer (20), 250–251
 - Herb, Spice, and Vegetable Beer (21-a), 252–253
 - labels, 262
 - overview, 233
 - Smoked Beer (22-b), 256–257
 - Specialty Beer (23), 260–261
 - Weizenbock (15-c), 248–249
 - Weizen/Weissbier (15-a), 244–245
 - Wood-Aged Beer (22-c), 258–259
 - MLC (Moe, Larry, and Curly) Barley Wine, 209–210
 - molasses, 83, 186
 - mold spores, 34
 - moldy aromas, 328
 - monosaccharides, 266, 274
 - morat, 275
 - Morelli, Stephen, 241
 - mother culture, 344
 - Mount Hood hops, 55, 376
 - mouthfeel, 43, 316
 - mulsum, 275
 - multistep infusion mashing, 121
 - Münchner-Style Helles (1-d), 214–215
 - Munich Dunkel (4-b), 224–225
 - Munich malts, 365–366
 - Munich Pale Lager, 224
 - Munich yeast, 383
 - musty aromas, 328
- N ●
- Nachel, Marty
 - 1-4-U, 2-4-ME S.B., 161
 - 3-D (Duisberg, Dortmund, Düsseldorf) Export, 217
 - Amber Waves, 169
 - Brass Baltics Imperial Porter, 179
 - Buxton Brown of Derbyshire County, 173
 - Dark Vader Lager, 223
 - Def, Dum, and Blonde, 237
 - Dubbel Trubbel, 199
 - Early Times Old Ale, 259
 - Ein, Zwei, Drei Weizen, 249
 - Exchequer Pale Ale, 189
 - Flabby Abbey Not-So-Grande Reserve, 204
 - Give Me Liberty, or . . . Else, 167
 - Grain-n-Beerit, 219
 - Gullywasher, 213
 - Helles/Maibock, 227
 - How Wheat It Is!, 237
 - Indiana Pale Ale, 191
 - Ja, Das Ist ein Schnitzel Bock, 227
 - Jack the Sipper, 207
 - Lindisfarne Libation, 280
 - Macke's Son Stout, 183
 - Pugnacious Porter, 177
 - RE: Bock, 229
 - Slam Dunkel, 247
 - Smokey the Beer (Smoked Porter), 257
 - TransPorter, 177
 - Tripel Play, 201
 - Wassail While You Work, 253
 - Why'd You Kilkenny?, 163
 - Wit or Witout You, 195
 - Yule Brimmer, 261
 - Yulebrew '92, 185
 - National Judge, 339

- National Organic Program, 289
 natural clarifying agents, 51
 natural maltose sugars, 43
 Netherlands, 198
 neutral pH, 75
 New Belgium Brewery, 284
 New England Cider (28-a), 268, 271
 New Stout II, 185
 New Years Day, 181
 Newport hops, 376
 nitrogen-barrier bags, 57
 noble hops, 56
 nonalcoholic beer, 72
 non-organic ingredients, 285, 287
 non-organic malt, 291
 non-toxic beers, 288
 North American
 microbrewing industry, 60
 North American yeast, 383
 North, Brian and Linda, 183, 215
 Northdown hops, 376
 Northern Brewer hops, 59, 376
 Northern English Brown Ale (11-c), 172–173
 Northwest Ale yeast, 382
 Northwestern Extract Co.
 Alterior Motive, 243
 Belgian Abbey, 197, 202–203
 Dudley Brewright Amber Ale, 169
 Jealous Wit, 195
 St. James Gate Stout, 181
 Two Year Wheat Beer, 245
 Novice judge, 339
 Nugget hops, 376
- ○ ●
- oak chips/oak extract, 86
 oats, 295, 369
 odors. *See* aromas
 off flavors. *See* flavors and aromas
 OG (original gravity), 105
- Oktoberfest/Märzen Lager yeast, 391
 Ol' Brown Bear Brown Ale, 173
 Old Ale (19-a), 206–207
 Old Alt Ale, 207
 Olympic hops, 55
 Open Category Mead (26-c), 281
 orange peel, 87
 organic brewing
 adjuncts and, 292
 grain and, 290–291
 hops and, 291
 ingredients, 287–288
 malt and, 291
 overview, 286–287
 tracking trend, 288–289
 USDA certification, 290
 water and, 290
 yeast and, 292
 original gravity (OG), 105
 overcarbonation, 325, 330
 overroasting, 345
 oversparging, 324–325
 oxidation, 148, 324–325
 oxidized aromas, 327
 oxidized hops, 57
 oxidized taste, 328
 oxygen-absorbing caps, 148, 324
 oxygen-barrier bags, 57
- **p** ●
- Pacific Ale yeast, 387
 Pacific Coast Brewing Company, 47
 Page, Ron, 253, 255
 palate cleansers, 334
 palate fatigue, 340
 Pale Ale malt, 364
 Pale Ales, 160, 358
 Pale Moon Rizen Weizen, 249
 papery flavors, 324
 partial mashing, 124–127
 parti-gyle brewing, 123
 pathogens, 35
 Paulaner Brewery, 214
 Paul's Malt, 363
 PBW (Powdered Brewery Wash), 285
- peak fermentation, 65
 peat-smoked malt, 256
 pectin, 116, 270
 Peek Under the Kilt Ale, A, 165
 pellets, 53
 percarbonates, 35, 36
 Perle hops, 377
 permanent hardness, 77
 Perries, 267
 petillant carbonation, 267
 petillant Meads, 276
 pets, 15, 110
 pH balance
 acidic, 75
 adjusting levels, 126
 of mash water, 120
 mashing and, 119
 neutral, 75
 of sparge water, 325
 water composition and, 73
 pH meters, 353
 pH papers, 30
 phenolic aromas, 327, 328
 phenolic taste, 329
 phenols, 323
 phosphoric acid, 96
 Pilsener yeast, 382
 Pilsener beer, 79
 Pilsener glasses, 305, 306
 Pilsener Lager yeast, 390
 Pilsener malt, 364
 Pilsner Urquell, 218
 pin lock fittings, 150
 pint glasses, 305–306
 pitching, 13, 65, 66
 plastic bottles, 142–143
 plastic flavors, 323
 plastic, food-grade, 21, 360
 plastic funnels, 26
 plastic hose, 19, 22
 plate type filters, 355
 plugs, 53
 polypropylene glycol alginate, 93
 Polyvinylpyrrolidone (PVPP), 95
 Porter beer, 174
 postal scales, 26, 28, 31
 potassium sorbate, 276
 pouring, 303–307

Powdered Brewery Wash (PBW), 285
 precipitation, 76–77, 92
 prehopped malt extract, 49
 preservative-free apple juice, 270
 preservatives, 92–93
 pressure per square inch (psi), 155
 pressure relief valves, 147
 pressurized carbon dioxide tank, 150
 Pride and Jay, 271
 Pride of Ringwood hops, 55, 377
 primary fermenters, 19, 21, 139
 primers
 alternative, 146–147
 choosing, 145–146
 overview, 144–145
 priming buckets, 20
 priming ingredients, 144
 priming vessels, 22
 prizes, 335
 Product Composition, 290
 Progressive Mead, 279
 proofing, 102
 propagation, 69–70, 113
 protein rest, 121
 proteins, 44
 psi (pressure per square inch), 155
 pub glasses, 306
 Pugnacious Porter, 177
 pungent floral/herbal
 aroma, 51
 purists, 47, 146
 PVPP (Polyvinylpolypyrrolidone), 95
 pyments, 275, 282

• Q •

Quadrupel Trappist ale, 200
 quality
 acid test, 96
 additives and preservatives, 92–93
 clarification, 93–95
 overview, 91

• R •

racking, 27, 116, 151–154
 racking tubes, 26, 27
 Rahn, Phil, 229, 241
 Rahr Malting Co., 363
 ranching yeast, 343
 Rauchbier, 257
 raw oats, 46
 raw wheat, 46
 RE: Bock, 229
 Ready-to-Pitch (RTP) yeast, 69
 recipes
 Ale
 American Amber Ale (10-b), 168–169
 American Brown Ale (10-c), 170–171
 American India Pale Ale (IPA) (14-b), 190–192
 American Pale Ale (10-a), 166–167
 Baltic Porter (12-c), 178–179
 Belgian Dark Strong Ale (18-e), 204–205
 Belgian Golden Strong Ale (18-d), 202–203
 Belgian Pale Ale (16-b), 196–197
 Brown Porter (12-a), 174–175
 Dry Stout (13-a), 180–181
 Dubbel (18-b), 198–199
 English India Pale Ale (IPA) (14-a), 188–190
 English-Style Barley Wine (19-b), 208–210
 Extra Special/Strong Bitter (E.S.B.) (8-c), 160–161
 Foreign-Style Stout (13-d), 184–185
 Imperial India Pale Ale (IPA) (14-c), 192–194
 Imperial Stout (13-f), 186–188
 Irish Red Ale (9-d), 162–163
 Northern English Brown Ale (11-c), 172–173

Old Ale (19-a), 206–207
 Robust Porter (12-b), 176–177
 Strong Scotch Ale (9-e), 164–166
 Sweet Stout (13-b), 182–183
 Tripel (18-c), 200–201
 White (Wit)(16-a), 194–196
 batch size, 3
 Cider
 Common Cider (27-a), 270–271
 New England-Style Cider (28-a), 271
 Specialty Cider (28-d), 272
 Lager
 American Dark Lager (4-a), 222–223
 American Premium Lager (1-c), 212–213
 Bohemian-Style Pilsener (2-b), 218–219
 Doppelbock (5-c), 230–231
 Dortmunder/European-Style Export (1-e), 216–217
 German-Style Helles Bock/Maibock (5-a), 226–227
 Märzen/Oktobertfest (3-b), 220–222
 Münchener-Style Helles (1-d), 214–215
 Munich Dunkel (4-b), 224–225
 Traditional Bock (5-b), 228–229
 Mead
 Open Category Mead (26-c), 281
 Pymment (grape melomel) (25-b), 282
 Traditional Mead (24-a), 280
 mixed-style
 American Wheat (6-d), 238–239
 Blonde Ale (6-b), 236–237
 California Common Beer (7-b), 240–241

- Christmas/Winter/
 Specialty Spiced Beer
 (21-b), 254–255
 Cream Ale (6-a), 234–235
 Dunkelweizen (15-b),
 246–247
 Düsseldorf-Style Altbier
 (7-c), 242–243
 Fruit Beer (20), 250–251
 Herb, Spice, and Vegetable
 Beer (21-a), 252–253
 Smoked Beer (22-b),
 256–257
 Specialty Beer (23),
 260–261
 Weizenbock (15-c),
 248–249
 Weizen/Weissbier (15-a),
 244–245
 Wood-Aged Beer (22-c),
 258–259
 Recognized Judge, 339
 recycling, 286
 reduce, 284–285
 Reed, Rande, 187
 refiner's syrup, 84
 refractometer, 355
 refrigeration, yeast and, 344
 refrigerators, 285
 registration, 337
 Reiter, Tim, 281, 282
 relief valves, 152
 replacement hops, 61
 retailers, homebrew supply, 18
 retronasal passage, 311
 returnable-type bottles, 135
 reuse, 285–286
 rhizome, 347
 rice, 44, 46, 369
 rice hulls, 297
 rice syrup, 83
 rice syrup solids, 83
 Ringwood Ale yeast, 382
 roasted barley, 46, 368
 roasting, 296, 345
 Robison, Dan, 251
 Robust Porter (12-b), 177
 Rose's Russian Imperial
 Stout, 187–188
 Rotten to the Corps, 271
 RTP (Ready-to-Pitch) yeast, 69
 rubber stoppers, 27
 Russia, 185
 rye, 47
 Rye Malt, 368
- S ●
- S. carlsbergensis, 64
 Saaz hops, 55, 377
 Saccharomyces cerevisiae, 64
 Saccharomyces uvarum, 64
 sack strength Mead, 276
 salt, 31
 salty taste, 314, 329
 Samuel Adams LongShot
 competition, 16
 San Francisco Lager yeast,
 390
 sanitation
 battling bacteria (and
 fungi), 34–35
 bottle cleanliness, 38–39
 cleansers and sanitizers,
 35–37
 defined, 34
 equipment cleaning
 practices, 37–38
 overview, 33–34
 sanitation process, 37–38
 sanitizers, 35–37
 fermentation and, 320
 food-grade, 36
 iodine-based, 36
 sanitizing
 bottle caps, 39
 ecology and, 285
 equipment, 137
 importance of, 15
 kegs, 151–154
 Santiam hops, 377
 scales, 26, 28, 31
 Schmit, Richard, 235
 Schreier, 363
 Scintillator, 231
 score sheets, 338
 scoring, 340
 Scotch Ale, 145, 165–166
 Scotch whiskies, 164
 Scottish yeast, 381
 sealing bottles, 330
 seasonal brews, 254
 second runnings, 123
 secondary fermentation
 advantages, 112–113
 for Mead, 279
 overview, 111–112
 procedure, 113–115
 secondary fermenters, 27,
 139, 359
 secondary ions, 78
 sedimentation phase, 65
 seed, 52
 self-reproducing, 63
 self-stick labels, 344, 348
 semi-sweet mead, 276
 session beer, 174
 Seven Bridges Homebrewing
 Cooperative, 290
 shelf-life, 50
 sherry-like flavors, 324
 Shilling designation, 164
 Sierra Nevada Brewing
 Company, 284
 sight, evaluating brew by, 313
 Silica gel, 95
 Simcoe hops, 377
 Simpson, James Parker, 363
 Simpson's, 363
 single gauge tank regulators,
 150
 Single Trappist ale, 200
 siphon hose, 154
 siphoning, 115
 six-pack holders, 138
 skunk aroma, 325
 Slam Dunkel, 247
 sleeves, 306
 smack packs, 69
 small beer, 240
 SmartCap Pure Seal, 148
 smoke extract, liquid, 87, 165,
 256–257
 smoke flavor, 87
 Smoked Beer (22-b), 256–257
 Smoked malt, 368
 Smokey the Beer (Smoked
 Porter), 257
 smoking, 345

- smoky flavors, 323
 - soaking, 37, 138
 - soap-and-water cleaning, 33
 - soapy aromas, 328
 - soapy taste, 329
 - soda bottles, 143
 - soda keg setup, 151
 - sodium, 77
 - sodium chloride, 31, 78
 - sodium metabisulphite, 36
 - soft Cider, 265
 - software, 356
 - solvent-like aromas, 328
 - sorghum, 295, 296
 - sorghum syrup, 83
 - sour flavors, 323
 - sour taste, 314
 - Southeast Texas Northern Brown Ale, 171
 - Southern German Lager yeast, 391
 - Spalt hops, 378
 - sparge, 120
 - sparge bags, 26, 28
 - sparge water, 325
 - sparging, 133–134
 - sparkling carbonation, 267
 - sparkling Meads, 276
 - Sparkolloid, 95
 - Special “B”, 367
 - Special London yeast, 384
 - Special Roast, 367
 - Specialty Beer (23), 260–261
 - Specialty Cider (28-d), 272
 - specialty grains, 45, 178
 - cracking, 109
 - malt and, 366–368
 - milling, 109
 - specialty yeast, 388–390
 - Specific Gravity, 355
 - specific gravity scale, 24
 - spectrophotometers, 48
 - spices, 88–89
 - spiciness, 51
 - spigots, 139
 - sponsors, 334
 - spruce essence, 86
 - SRM (Standard Reference Method) scale, 48
 - St. James Gate Stout, 181
 - stability, hop, 58
 - stainless steel, 37, 150
 - stainless steel soda kegs, 150
 - stale hops, 56
 - standard measure, 72
 - Standard Reference Method (SRM) scale, 48
 - standard strength Mead, 276
 - starter culture, 344
 - starter kits, 18–19
 - starting point, 19
 - steam beer, 240
 - steam distillation, 54
 - steeping, 109, 117
 - steins, 308
 - step infusion mashing, 121
 - sterilization, defined, 34
 - stewards, 334
 - still carbonation, 267
 - stock pots, 30
 - stoppers, 27
 - storage
 - during conditioning phase, 141
 - DME, 50
 - hops, 348
 - how, 302
 - how long, 303
 - overview, 301
 - pellets, 53
 - steins, 308
 - where, 302
 - Stout Porter, 180
 - Stouts, 83
 - strainers, 26, 27
 - straws, 137
 - strength, 276
 - Strong Scotch Ale (9-e), 164–166
 - Stu Brew, 225
 - stuck runoff, 128
 - sucrose, 82
 - sugars
 - adjunct, 82–84
 - fermentable, 66
 - natural maltose, 43
 - sources of, 145
 - sulfate, 77
 - sulfury odors, 326
 - sunlight, 325
 - Super High Gravity Ale yeast, 388
 - Super Kleer KC Finings, 95
 - Super Styrian hops, 371
 - supply shops, 18
 - swankey, 240
 - sweet gale, 90
 - sweet Mead, 276
 - Sweet Stout (13-b), 182–183
 - sweet taste, 314
 - swing-top bottles, 22, 142
 - syrups, 43, 83–84, 146
- T •
- table salt, 78
 - table sugar, 82
 - Tallman, Stu, 225
 - tank plugs, 153
 - tank regulators, 150
 - tanks, carbon dioxide, 150
 - tannin, 86, 92
 - tapping, 156
 - Target hops, 378
 - tart flavors, 323
 - tartaric acid, 96
 - taste, 314–316, 328
 - temperature correction scale, 24
 - temperatures
 - fermentation, 66
 - mashing and, 119
 - for serving beer, 304
 - temporary hardness, 76
 - ten-forty eight, 105
 - ten-twelve, 105
 - terminal gravity, 24
 - tertiary fermentation, 111–115
 - Tettnanger hops, 378
 - Thames Valley yeast, 381
 - Theresienwiese, 220
 - thermometers
 - cost, 26
 - digital, 353
 - lab immersion, 26, 28, 31

- thermostats, 352
 Thistle glasses, 305, 306
 three-stage fermentation, 111–115
 thriftiness, 15, 19
 throwaway bottles, 135
 TIG (tungsten inert gas) welding, 351
 timeline, homebrewing, 13–14
 tinted glass, 136
 tongue, 314
 top-fermenting strain, 64
 trace metals, 78
 Traditional Bock (5-b), 228–229
 Traditional Mead (24-a), 280
 Traditional Perry (27-e), 268
 translucent liqueurs, 147
 transparent beer, 91
 TransPorter, 177
 Trappist abbey breweries, 68
 Trappist beer, 198
 treacle, 84
 Tripel (18-c), 200–201
 triple-scale hydrometers, 23
 triploid seedling, 373
 trisodium phosphate (TSP), 36, 137, 152, 308
 troubleshooting
 conditioning and appearance problems, 330–331
 fermentation, 319–322
 off flavors and aromas, 322–329
 true taste, 314
 TSP (trisodium phosphate), 36, 137, 152, 308
 tulip glasses, 307
 tungsten inert gas (TIG) welding, 351
 turbinado sugar, 84
 twist-off bottles, 136
 Two Year Wheat Beer, 245
 two-handle-style cappers, 141
 two-stage fermentation, 111–115
 type-100 hoplets, 53
- **U** •
- ullage, 140
 under-oxygenated wort, 103
 underroasting, 345
 unfermented beer, 72
 unfiltered apple juice, 270
 uniform bottles, 136
 unpasteurized apple juice, 270
 unpasteurized honey, 278
 unsulfured dark molasses, 186
 urban myths, 287
 Urquell yeast, 383
 U.S. Department of Agriculture (USDA), 288–290
 utility faucets, 23
 utilization factor, 58–59
- **V** •
- Van Dyke, Dick, 161, 167, 189–190, 207, 245
 Vanguard hops, 378
 vanilla, 87, 89
 varietal honey, 274
 vegetal flavors and aromas, 326
 Veronica's Nectar I.P.A., 191–192
 Victory Malt, 367
 Vienna malt, 365
 vinous, 206
 viscosity, 43, 49
 volatile aromatics, 310
 volumes, 156
- **W** •
- Ward, Bob, 209
 Warrior hops, 379
 Wassail While You Work, 253
 water
 antibacterial agents, 75–76
 bottled, 78–79
 chalky, 325
 chemistry of, 74
 cooling, 286
 distilled, 78
 in European cities, 75
 gravity of, 24
 hard, 76–77, 119–120, 325
 mineral ions, 77–78
 organic brewing and, 290
 overview, 73
 pH balance, 75, 120, 325
 trace metals, 78
 water treatments, 211
 wee heavy, 164
 Weihenstephan Wheat yeast, 384
 Weizenbier glasses, 307
 Weizenbock (15-c), 248–249
 Weizen/Weissbier (15-a), 244–245
 Weyermann & Co., 363
 wheat, 44
 Wheat Beer, 194, 392–393
 Wheat Bock, 248
 Whirlfloc, 95
 Whitbread Ale yeast, 382
 White (Wit)(16-a), 194–196
 White beer, 194
 white finings, 94–95
 White Labs WLP715 Champagne Yeast, 393
 White Labs WLP720 Sweet Mead/Wine Yeast, 394
 White Labs WLP775 English Cider Yeast, 394
 white sorghum syrup, 296
 white sugars, 84
 whole-leaf hops, 53
 Why'd You Kilkenny?, 163
 Wika, Jamie, 199, 209
 wild yeast, 322
 wildflower honey, 274
 Willamette hops, 379
 wine carafes, 343
 wineries, 277
 Winter Warmers, 254
 Wit or Witout You, 196
 Witbier, 194
 Wolaver, Morgan, 289

- Wood Bomb (wood-aged IPA), 259
 - Wood-Aged Beer (22-c), 258–259
 - wort, 13, 17, 66, 76, 103, 128, 286, 354, 355
 - Wyeast #4184 Sweet Mead, 393
 - Wyeast #4632 Dry Mead, 393
 - Wyeast #4766 Cider, 393
 - Wyeast Labs, 68
 - Wyeast's gluten-free yeast, 298
- y •
- yeast
 - adjustments in, 110–111
 - advanced liquid, 384–385
 - banking, 343–345
 - bottom-fermenting, 390–391
 - dry, 67–68
 - energizers, 71, 93
 - fermentation problems and, 320
 - gluten-free brewing and, 297–298
 - growth phase, 65
 - harvesting, 133–134
 - liquid
 - bottom-fermenting, 382–383
 - overview, 68–69
 - top-fermenting, 380–382, 386–388
 - mead and cider, 393–394
 - nutrients, 71, 93, 279
 - organic brewing and, 292
 - overview, 379–380
 - pitching, 13
 - propagating, 69–70
 - re-propagating, 286
 - reusing, 134
 - specialty/belgian, 388–390
 - strains, 108, 391–393
 - sugar consumption, 25
 - wild, 322
 - Yellow Dogs Pilsener, 219
 - Yule Ales, 254
 - Yule Brimmer, 261
 - Yulebrew '92, 185