INDEX

A
Advance Week, 183
aerification
to ease slope severity, 44
fairway, 92–93
frequency, 50–52
proper practices, 35–36
scheduling, 11–12
tee firmness, 86
tining practices, 50–52
aerosol paint, 137
agronomic program
-cultural control practices
- aerification, 35–36
- overview, 34–35
- topdressing, 36
- verticutting, 36–37
fertilization, 23–26
golf course inventory, 11
hand-watering, 66
irrigation techniques, 34
mowing practices
- choosing mowers, 27–30
- cutting frequency, 31
- cutting height, 30–31
- mower care, 32–33
- mowing patterns, 31–32
- operator training, 33–34
- overview, 26–27
- new products, 26
- overview, 21
- pest management, 37–38
- soil testing, 22–23
- tissue testing, 22–23
Agronomists, 175
alignment, tee, 89–91
amino acid products, 57
angled sand, 53, 118
animal control, 59
annual capital expenditure on equipment, 6
approaches, 165, 177
architectural changes, 163
assistant golf course superintendent, 2

B
back cuts, 46
background information sheet, temporary staff, 8
back-to-front bunker design, 108
back-track mowing, 46
bad cup plugs, 80–81
bed bar, mower, 27
behind the scenes stories, 156
bench height, 70
blades
   cup cutter, 136
   mower, 28, 32
blowers, 54
board meeting presentations, 12
borrowed equipment, 5–6
boundary markers, 8–9
brooms, 54
brushing, 32, 54, 177
buckets, 136
budget
   equipment replacement, 6
   reviewing, 159–160
   tournament-specific
      conditioning goals, 15–16
bunkers
   Conditioning Guidelines, 181–183
   construction, 111–117
   contouring, 95
   design elements, 106–111
   drainage, 111–117
   intermediate rough, 103–104
maintenance
   debris, 124
   defining margin, 124–127
   hardpan formation, 123–124
   overview, 121–122
   raking, 127–130
   sand depth, 122
   pretournament checklist, 167–168
   sand selection, 118–121
buying new equipment, 6
C
capital expenditure on
   equipment, annual, 6
catch basins, 92, 96
cleaning and mixing
   facility, 5
chemical treatment
   knowledge of pests in, 38
   scheduling, 13
chipping greens, 145–146
clay-based tees, 84
cleanup, 156–158
clean-up passes, 74–75
clipping yield, 56–57, 138–139, 178
club manager, 2
collars
   guidelines, 178
   precision maintenance, 74–75
   pretournament checklist, 165
   protection of, 79, 81
   relationship to step cut, 102–103
   collar-to-green definition, 74–75, 79
color
   golf course, 138–139
   sand, 118
committee members, 2
committees, establishing, 3–4
communication
   golf professional, 10
   members, 11–14
stakeholders
   establishing committees, 3–4
   identifying, 1–2
   soliciting input from, 2–3
compounds, media, 154–155
computerized irrigation and weather stations, 61–62
compounding. See also agronomic program; greens
fertilizer and chemical application, 138–140
identifying goals, 14–16
practice area maintaining range tees, 144–146
at older golf courses, 144
overview, 143
Conditioning Guidelines bunkers, 181–183
fairways, 179–180
general, 184–185
greens, 176–178
marking course, 183–184
overview, 175–176
play restrictions, 183
rough, 180–181
teeing grounds, 178–179
construction, bunker, 111–117
contact information, temporary staff, 8
contouring fairways, 94–96
green speed, 41–43
mowers for, 43–44
Course Conditioning Guidelines. See Conditioning Guidelines
course marking Conditioning Guidelines, 183–184
overview, 147–149
pretournament checklist, 170–171
cross-mowing, 180
cultural control practices aerification, 35–36, 50–52
fairway turfgrass, 93–94
green firmness, 77
overview, 34–35
tee firmness, 86–87
topdressing
application program, 53
choosing material, 52–53
overview, 36
types of drags, 54
verticutting, 36–37
cup cutting buckets, 136
consistency, 150
cup seters, 136
cutters, 135–137
guidelines, 178
optional tools, 136–137
overview, 132–134
pretournament checklist, 169
pullers, 135–137
water jugs, 136
cup liners, 169
cup plugs, bad, 80–81
cup seters, 136
cutters, cup, 135–137
cutting frequency, 31
cutting height fairway, 94–95
green, 70–75
intermediate rough, 103
mower type, 27–31
proper, 30–31
range tee, 145–146
rough, 100–101, 180–181
D
debris removal, bunker, 124, 182
deep-tine aeration, 35, 51–52
density, rough, 97–100
depth, course, 144
deew removal, 103
dial gauges, mower, 73
distance, tee, 89–91
distribution, bunker sand, 121
distributors, mower, 29
divot repair tools, 136–137
divots, 87, 96–97, 185
drags, types of, 54
drain lines, 96
drain tiles, 113–115

DRAINAGE
bunker
- adding, 114–117
- designing, 112–114
- guidelines, 182–183
- sand depth, 122
fairway, 92
green, 44
dry injection, 35–36

E
ease of operation, mower, 28
edging bunkers, 124–127, 182
educating staff, 11
electric carts, 185
electric mowers, 27
equipment
- adequate, 185
- budgeting for replacement, 6
- evaluating needs, 5–7
- pretournament checklist, 173–174
evapotranspiration (ET), 61–62

F
fabrics, protective, 87
faces, bunker, 126–128
fairways
- Conditioning Guidelines, 179–180
- contouring, 94–95
drainage, 92
firmness, 92–93
mower options, 28–29
mowing height, 94–95
mowing patterns, 31–32
pretournament checklist, 166
problems, 95–97
soil testing, 23
topdressing, 36
turfgrass health, 93–94
width, 91–92
families of fungicides, 141–142
fertilization
- fairway turfgrass, 93–94
- feeding methods, 56–58
- green, 176
- near-term preparations, 138–143
- new-product promises, 26
- overview, 23–26, 54–56
- range tee, 144
fiber weave bunker liners, 117
fibrous drag mats, 54
firmness
- fairway, 92–93
- green, 77–78, 176–177
- tee, 86–87
- first tees, 83–84
flagpoles, 169–170
flags, 169–170
flat bunkers, 109

INDEX
floating-head greens mowers, 27, 43–44
floor, bunker, 112
flowers, 14
follow-up cleanup and restoration, 156–158
conducting post-tournament evaluation, 158–160
food and beverage director, 2
fried egg lies, 118
Fungicide Resistance Action Committee (FRAC), 142
fungicides, 141–142

G
golf course inventory, 8–11
golf professional conditioning goals, 15
overview, 2
playing with, to review course, 10
setting up course and pace of play, 146–147
grain, 31–32, 175
granular fertilizer, 24, 55–56
grass type, 45–46. See also agronomic program
green collars. See collars
green speed conditioning goals, 15
contour and slope severity, 41–43
drainage, 44
fertilizer use and, 24–25, 55–57
guidelines, 174
during tournament, 174
trial runs, 18
greens aerification, 50–52
Conditioning Guidelines, 176–178
contour and slope severity mowers, 43–44
speed, 41–43
fertilizer programs, 54–58
glass type, 45–46
mowing patterns, 31–32
overview, 40
pesticide programs, 54–56, 58–59
pretournament checklist, 164
putting conditions
bad cup plugs, 80–81
collar-to-green definition, 79
firmness, 77–78
mowing height, 72–73
mowing style, 68–72
overview, 67–68
precision maintenance, 73–75
smoothness, 75–77
thin areas, 79–80
root zone health, 48–50
shade issues, 47–48
size, 44–45
soil testing, 22–23
surface density and minimal grain, 46
topdressing, 36, 52–54
water management, 60–67
groomers, 36–37
growth rate, 56–57
growth regulators, 58–59
H 
hammers, 135
hand-brushing, 54
hand-edging, 125–126
hand-mowing, 28
hand-raking bunkers, 127–128, 181–182
hand-rollers, 137
hand-watering, 65–67, 143
hardpan formation, 123–124
hazards. See also bunkers
golf course inventory, 8
mowing swaths around, 184
heads
irrigation, 61, 64, 67, 96
mower, 28–29
height, cutting. See cutting
height
guages, mower, 73
holes
on fairway, 96
location of, 132–134, 146, 150
painting, 137, 183
hollow-tine aerification, 35, 51–52
hoses, 67
hospitality areas, 151–152
hydraulic leaks, 32

I
intermediate roughs, 102–104
inventory
equipment, 5–7
golf course, 8–11
iron applications, 57
irrigation. See also water
management
computerized systems, 61–62

guidelines, 176–177
overhead, 63–65
pretournament checklist, 167

techniques, 34
trenches, 96

J
jar tests, 58

L
labor requirements, 160
landscape changes, 162
Lang Penetrometer, 61, 78, 176
layering, 49, 53
lead rules official, 148
levelness, tee, 84–85
liners, bunker, 115–117
liquid fertilizer, 24, 56
loaned equipment, 5–6
Lombardi, Vince, 1
long-term preparation strategy
communicating with
members, 11–14
conducting golf course
inventory, 8–11
equipment needs, 5–7
identifying tournament-
specific conditioning
goals, 14–16
maintenance facility needs, 5
overview, 4
scheduling maintenance,
11–14
staffing needs, 7–8

M
maintained roughs, 101–102
maintenance
bunker
debris, 124
defining margin, 124–127

designing for, 109

extisting bunkers, 113–114

hardpan formation, 123–124

overview, 121–122

raking, 127–130

sand depth, 122

mower, 32–33

range tee, 144–146

scheduling, 11–14, 149–150

working backward to achieve goals, 13–14

maintenance facility evaluations, 5

maintenance staff overview, 2

post-tournament evaluations, 158

maps, site, 150–153

margin, bunker, 124–127

marking course Conditioning Guidelines, 183–184

overview, 147–149

pretournament checklist, 170–171

mechanical edgers, 125

mechanical rakes, 123, 126, 128, 181–183

media, 154–156

meetings planning team, 16–17

post-tournament evaluation, 158–159

members, communicating with, 11–14

moisture penetration, 62

moisture sensors, 61

mowers care and maintenance, 32–33

contour and slope severity, 43–44

for greens, 176

options, 28–30

overview, 27–28

precision maintenance, 73

for roughs, 101

triplex, 71–72

walking, 68–71

mowing bunker slopes, 180

checking cup plug depth prior to, 81

fairway, 180

green guidelines, 177–178

triplex mowing, 71–72

walk mowing, 68–71

proper practices choosing mower, 27–30

cutting height, 30–31

frequency, 31

mower care, 32–33

operator training, 33–34

overview, 26–27

patterns, 31–32

range tee, 146

rough, 180–181

swaths around hazards, 184

tee, 91, 177–179

mowing height fairway, 94–95

green, 70–75

intermediate rough, 103

mower type, 27–31

proper, 30–31
mowing height (continued)
range tee, 145–146
rough, 100–101, 180–181
mowing patterns, 31–32, 46
mulch, 10

N
narrowing fairways, 91–92
natural roughs, 101
near-term preparations
applying fertilizers and chemicals, 138–143
conditioning practice area
maintaining range tees, 144–146
at older golf courses, 144
overview, 143
cup cutting
buckets, 136
cup setters, 136
cutters, 135–137
optional tools, 136–137
overview, 132–134
pullers, 135–137
water jugs, 136
maintenance schedule, 149–150
managing tournaments
handling media, 154–156
overview, 150–153
marking course, 147–149
overview, 131
pace of play, 146–147
scheduling staffing, 149–150
setting up course, 146–147
nettings, 87
new-product promises, 26
nitrogen, 25–26
noise, triplex mower, 72
nozzles, 61, 64, 67
nutrients, 22

O
obstructions
rough, 104–105
tee, 88–89
Ohio State University, 141–142
on-course traffic restrictions, 166
one and ten tee start
tournaments, 150
one-third cutting rule, 31
operator training, mower, 33–34
outlets, bunker, 112
out-of-bounds markers, 149, 182
overhead irrigation, 63–65

P
pace of play, 146–147
paint
hole, 137, 185
for marking course, 148
painted bunker edges, 127
par three tees, 86
parts, mower, 30, 73
patterns, mowing, 31–32, 46
pea gravel, 112
penetration, moisture, 62
penetrometer tests, 183
percolation rates, 49–50
pest management, 37–38, 94
pesticides
in agronomic program, 37–38
applying, 58–59
overview, 54–56
precautions, 140
phosphorus, 57
pinch points, 153
plan, tournament, 17–19
planning
  fertilizer and chemical application, 138–143
  long-term preparation strategy
  communicating with members, 11–14
  equipment needs, 5–7
  golf course inventory, 8–11
  maintenance facility needs, 5
  overview, 4
  scheduling maintenance, 11–14
  staffing needs, 7–8
  tournament-specific conditioning goals, 14–16
stakeholders
  establishing committees, 3–4
  identifying, 1–2
  soliciting input from, 2–3
as tournament date nears, 16–19
planning team meetings, 16–17
planting
  flowers, 14
  trees, 11
play restrictions, 181
post-tournament evaluations, 158–160
pot bunkers, 110
potassium, 57
practice area, conditioning
  maintaining range tees, 144–146
at older golf courses, 144
  overview, 143
practice facility, 165
practice greens, 145–146, 165
precision maintenance, 73–75
preparation. See near-term preparations; planning presentations, at board meetings, 12
pretournament checklist approaches, 164
architectural changes, 163
bunkers, 167–168
cup liners, 169–170
equipment, 173–174
fairways, 166
flagpoles, 169–170
flags, 169–170
green collars, 165
greens, 164
irrigation, 166
landscape changes, 163
marking course, 170–171
on-course traffic restrictions, 168
practice facility, 165
practice green, 165
rain preparation, 168
rough, 166
stimpmeter, 173–174
tees, 165
tentative work schedules, 172
trees, 168–9
prism gauges, 69–71
 probes, bunker, 122–123
products, new agronomic, 26
professionals, golf. See golf professional
  professional events, 146
pullers, 135–137
purchasing new equipment, 6
putting greens, 146. See also greens
putting surface
bad cup plugs, 80–81
collar-to-green definition, 79
firmness, 77–78
mowing height, 72–73
mowing style
triplex mowing, 71–72
walk mowing, 68–71
overview, 67–68
precision maintenance, 73–75
smoothness, 75–77
thin areas, 79–80

Q
quick coupler attachments, 67

R
rain, 168, 185
rakes, 128–130
raking bunkers, 122–124, 127–130, 181–183
range tees, 144–146
records, chemical application, 140
reel mowers, 29, 32, 101
regrassing, 45–46
repair shop, 5
replacement, equipment, 6
replanting greens, 45–46
resistance, chemical, 141–143
restoration, 156–158
return events, 185
roller bearings, mower, 32
rollers, 68–69, 75–77
rolling bunker design, 107
rolling green, 177
root depth, 49
rotary mowers, 29, 101
rototillers, 123–124
roughs
conditioning goals, 15
Conditioning Guidelines, 180–181
density, 97–100
intermediate, 102–104
maintained, 101–102
mower options, 29
mowing height, 100–101
mowing patterns, 32
natural, 101
obstructions, 104–105
pretournament checklist, 166
soil testing, 23
round sand, 53, 118

S
sand
bunker
choosing, 118–121
deep, 122
guidelines, 181–183
testing reports, 118–120
for topdressing, 52–53
scheduling
fertilizer and chemical application, 138–143
maintenance, 11–14, 149–150
staffing, 149–150
tentative work, 172
seasonal changes to putting areas, 79
self-driven mechanical edgers, 125
sensors, moisture, 61
service, mower, 29
setup personnel, 147
shallow, flat bunkers, 109
shoots, 88
shotgun start tournaments, 150
signage, 149, 157
sign-up form, volunteer, 7
silica applications, 57
site maps, 150–153
size
  green, 44–45
  tee, 85–86
skyboxes, 151
slope severity
  mowers, 43–44
  speed, 41–43
smile drains, 114
smoothness of green surface,
  75–77
sodding, 13, 78–80
soil probes, 62
soil sealant bunker liners, 117
soil tees, 84
soil testing, 22–23, 54–55
soliciting input from
  stakeholders, 2–3
solid-tine aeration, 35
spectator traffic, 152–153
speed, green. See green speed
spiking, 36
spin-raking, 124, 182
split shifts, 149
sponsor attribution signs, 157
sponsors, 151
spoon-feeding, 24, 56
spraying greens, 58–59
spreadsheet, equipment
  inventory, 6
stacked sod-wall bunkers, 110
staff
  cup cutting, 132–133
  evaluating needs, 7–8
  maximizing efficiency of, 161
  post-tournament evaluations,
    158–159
  precision maintenance, 74
  scheduling, 149–150
staff meetings, 11–12
stakeholders
  establishing committees, 3–4
  identifying, 1–2
  soliciting input from, 2–3
stakes, 171, 184
steel drag mats, 54
steep face bunker design, 108
step cut, 102–104
Stimpmeters, 41–43, 171–172
storage, equipment, 5
string trimmers, 126
subcommittees, 17
surface drainage, 44
surrounds mowers, 29
swaths, around hazards, 184

tees
  alignment, 89–91
  areas requiring protection,
    87–88
Conditioning Guidelines,
  178–179
distance, 89–91
firmness, 86–87
levelness, 84–85
mower options, 28
mowing patterns, 31–32
obstructions, 88–89
tees (continued)
  overview, 83–84
  pretournament checklist, 165
  size, 85–86
  soil testing, 22–23
  topdressing, 36
  television towers, 155–156
  temporary staff, 7–8
  tentative work schedules, 172
  testing sand, 118–120
  thatch, 49, 77, 179
  thickness, rough, 98–100
  thin areas, 79–80
  tiles, drain, 113–115
  tilted tees, 84
  timing of fertilizer application, 55
  tining, 50–52
  tire tracks from triplex mowers, 72
  tissue testing, 22–24, 54–55
  topdressing
    application program, 53
    choosing material, 52–53
    fairway, 93
    green, 177
    overview, 36
    range tee, 144
    tee firmness, 86–87
    types of drags, 54
    tournament chairman, 15
    tournament plan, 17–19
    traffic flow, 152–153
    traffic patterns, 45
  trees
    in bunkers, 111–112
    golf course inventory, 9–11
    pretournament checklist, 167
    removing obstructions, 88–89
  trial run, conducting, 18–19
  triplex mowers, 176
  triplex mowing, 28, 71–72
  true rolls, 75
  TurfTec Moisture Meters, 61, 176
  turfgrass, 45–46. See also
    agronomic program
  U
  USGA Rules of Golf, 106
  utility vehicles, 7
  V
  vehicles, 7, 185
  vendors, 151
  verticutting, 36–37
  volunteers, 7
  W
  walk mowing, 68–71
  walkways, 185
  waste bunkers, 111
  water injection, 35–36
  water jugs, 136
  water management
    bunker raking, 128
    computerized irrigation and
      weather systems, 61–62
    fairway, 93, 177
    green, 77–78, 176–177
    hand-watering, 65–67
    heads, 61
    moisture sensors, 61
    nozzles, 61
    overhead irrigation, 63–65
    overview, 60–61
    roughs, 98–99
    soil probes, 62
wetting agents, 62
weather, 143, 185
weather stations, computerized, 61–62
weight, mower, 70–71
wetting agents, 62, 143, 176–177
width
  fairway, 91–92, 179
intermediate rough, 102
mower, 27
wildlife problems, 59
working backward
to achieve maintenance goals, 13–14
fertilizer application, 26