

# INDEX

## *Breeding of the Cultivated Peanut*

- Backcrossing, 189
- Breeding objectives
  - General, 175
  - Specific, 191
    - Disease resistance, 178, 191, 192
    - Drought resistance, 193
    - Insect resistance, 193
    - Nematode resistance, 193
    - Seed dormancy, 194
    - Uniform maturity, 194
    - Suitability to mechanization, 194
    - Improved quality, 195
    - Improved yield, 191
- Diallel cross, 182
- Genetic markers, 177
- Genetic shift, 199
- Genetic variation, 176, 178
- Heterosis, 188
- Hybridization, 180
  - Artificial, 182
  - Cross compatibility, 179
  - Emasculation, 183
  - F<sub>1</sub> plants, 184
  - Gametocide, 184
  - Hybrid populations, 184
  - Natural hybrids, 177
  - Pollination, 183
  - Selection of parents, 181
- Introductions, 176, 179
- Isolines, 197
- Mutations
  - Deleterious, 178
  - Inducing, 190
- Mutation breeding, 190
- Outcrossing, 177
- Plots
  - Plant spacing in field, 187
  - Size and shape, 188
  - Hill, 188
- Polyploids
  - Allopolyploid, 178
  - Induction of, 179
- Propagation
  - Embryo culture, 184
  - Vegetative, 184
- Recurrent selection, 189
- Seed
  - Dormancy, 194
  - Foundation, 200
  - Viability, 199
- Selection
  - Bulk, 185
  - Correlation between characters, 185, 186
  - Heritability estimates, 186
  - Indices, 185
  - Mass, 179
  - Modified pedigree, 185
  - Pedigree, 181, 185
  - Pure line, 179
- Varieties
  - Composite, 199
  - Deterioration, 200
  - Maintenance, 198
  - Mixtures, 196, 199
  - Multiline, 197, 199
  - Pure line, 199
  - Time to develop, 198

## *Cultural Practices*

- Boyle method, 300
- Crop residue, 300
- Cultivation, 307
- Deep turning, 300
- Digging, 310
- Growth regulators, 309
- Gypsum, 301
- Hand shelled vs. machine shelled seed, 305
- Harvesting, 310
- Hay, 311
- Hogging peanuts, 311
- Inoculation, 306
- Irrigation, 308
- Organic litter, 300
- Planting, 301, 302
- Seed per acre, 304
- Seed treatment, 306
- Shelled vs. unshelled seed, 305
- Spacing, 302
- Time of planting, 301

## *Curing and Post-Harvest Physiology*

- Curing procedures and equipment, 513
- Definition of curing, 509
- Effects of curing on physical properties of peanuts, 514
- Effect of curing temperature on quality and flavor, 514
- Effect of curing on volatile constituents, 519
- Equilibrium moisture, 511, 534
- Influence of curing on germination, 519
- Methods of curing, 510-513
- Oil color, factor affecting, 518
- Physiological responses to curing, 516
- The drying process, 510

## *Deterioration of Quality by Fungi*

- Aflatoxin, 540-547, 552
- Damage, 533, 544
- Deterioration, 538, 547
- Detoxification, 552
- Environmental factors affecting aflatoxin production, 541-544
- Field fungi, 524
- Inactivation of aflatoxin, 549, 552
- Maturity, effect on growth of *A. flavus*, 545
- Microbial interactions, 546
- Mold prevention, 547
- Mycoflora, 525-529
- Storage fungi, 530, 532
- Toxic metabolites, 540

## *Diseases*

- Alternaria* sp., 470
- Anthraco-nose, 466
- Aphis craccivora*, 476
- Ascochyta arachidis*, 471
- Ascochyta* leafspot, 471
- Aspergillus* crown rot, 441
- Aspergillus flavus*, 468, 472
- Aspergillus niger*, 441-444
- A. pulverulentus*, 441

## Diseases—Cont.

- Aspergillus flavus* an antagonist of  
*Rhizoctonia bataticola*, *R. solani* and  
*Sclerotinia sclerotiorum*, 469  
 Bacterial wilt, 477  
*Belonolaimus longicaudatus*, 482  
 Blackhull, 456  
 Blue damage, 472  
*Botryotinia fuckeliana*, 452  
 Botrytis blight, 452  
*Botrytis cinerea*, 452  
*Calonectria crotolariae*, 451  
*Cercospora arachidicola*, 430  
*C. personata*, 430  
 Cercospora leafspots, 430  
*Cercosporidium personatum*, 430  
*Colletotrichum dermatium*, 467  
*C. magenoti*, 466  
*Colletotrichum* spp., 466  
*Corticium rolfsii*, 435  
*C. solani*, 440  
 Concealed damage, 472  
*Cricanemoides ornatum*, 483  
*C. rusticum*, 483  
*Cylindrocladium* black rot, 451  
*Cylindrocladium crotolariae*, 451  
 Damping off, see  
   Fusarium diseases, 449  
   Pythium diseases, 459  
   Rhizoctonia diseases, 438  
   Rhizopus seed and seedling rot, 457  
*Diaporthe sojae*, see  
   Phomopsis disease, 466  
 Diplodia collar rot, 445  
*Diplodia gossypina*, 445  
*Erysiphe communis*, 470  
*E. pisi*, 470  
*Fusarium angustatum*, 450  
*F. equisiti*, 450  
*F. martii*, 450  
*F. moniliforme*, 449  
*F. oxysporium*, 449  
*F. roseum*, 449  
*F. scirpi*, 450  
*F. solani*, 449  
*F. sporotrichioides*, 450  
*F. vasinfectum*, 450  
 Fusarium diseases, 449  
 Green rosette, 474  
*Helicotylenchus* sp., 483  
 Leaf Scorch, 444  
 Leafspot, see  
   Cercospora leafspot, 430  
   Leaf scorch, 444  
   Minor leafspots, 471  
   Pepper spot, 444  
   Phyllosticta leafspot, 465  
   Scab, 467  
*Leptosphaerulina crassiasca*, 444  
 Macrophomina diseases, 463  
*Macrophomina phaseoli*, 463  
*Macrosporium* sp., 470  
 Melanosis, 470  
*Meliogogyne arenaria*, 479  
*M. hapla*, 479  
 Minor leafspots, 471  
 Minor pod rots, 470  
 Minor root rots, 470  
 Minor seed and seedling diseases, 471  
 Minor seed rots, 471  
 Minor stem rots, 470  
*Mycosphaerella arachidicola*, 432  
*M. argentinensis*, 471  
*M. berkleyii*, 432  
 Nematode diseases, 479  
 Nematodes in relation to *Aspergillus flavus*  
   infection and aflatoxin, 432, 479  
*Oidium arachidis*, 470  
 Peanut stunt, 475  
*Pellicularia filamentosa*, 440  
*P. rolfsii*, 436  
*Penicillium caryophyllum*, 472  
*P. funiculosum*, 472  
*P. meleagrimum*, 472  
*Penicillium* spp., 472  
 Pepper spot, 444  
*Pestalotiopsis arachidis*, 471  
*Phaseolus vulgaris* susceptible to peanut  
   stunt, 476  
*Phymatotrichum omnivorum*, 471  
 Phymatotrichum root rot, 471  
 Phomopsis diseases, 466  
*Phomopsis sojae*, 466  
*Phyllosticta arachidis-by-pogaea*, 465  
*P. sojaecola*, 466  
 Phyllosticta leafspot, 465  
*Pleospora crassiasca*, 444  
 Pod breakdown, see  
   Pythium diseases, 459  
   Rhizoctonia diseases, 438  
 Pod rot, see  
   Cylindrocladium black rot, 451  
   Fusarium diseases, 449  
   Pythium diseases, 459  
   Rhizoctonia diseases, 438  
   Stem rot, 433  
   Verticillium wilt, 454  
 Powdery mildew, 470  
*Pratylenchus brachyurus*, 481  
*Pseudomonas solanacearum*, 477  
*Puccinia arachidis*, 447  
*Pythium debaryanum*, 460  
*P. irregulare*, 460  
*P. ultimum*, 460  
*P. myriotylum*, 459  
 Pythium diseases, 459  
*Rhizoctonia bataticola*, 463  
*R. solani*, 438  
 Rhizoctonia diseases, 438  
*Rhizopus arrhizus*, 457  
*R. oryzae*, 457  
*R. stolonifera*, 457  
 Rhizopus seed rot, 457  
 Ring nematode, 483  
 Root-knot nematode, 479  
 Root-lesion nematode, 481  
 Root rot, see  
   Cylindrocladium black rot, 451  
   Fusarium diseases, 449  
   Pythium diseases, 459  
   Rhizoctonia diseases, 438  
 Rosette, 473  
*Rotylenchus reniformis*, 483  
 Rust, 447  
 Scab, 467  
*Sclerotinia arachidis*, 471  
*S. minor*, 470  
*S. miyabeana*, 471  
*S. sclerotiorum*, 470  
*Sclerotium bataticola*, see  
   *Rhizoctonia bataticola*, 463  
*Sclerotium rolfsii*, 433, 472  
 Slime disease, 477  
 Snap beans susceptible to peanut stunt, 476  
*Sphaeloma arachidis*, 467

*Diseases—Cont.*

- Stemphylium botryosum*, 470
- Stem rot, 433
- Sting nematode, 482
- Thanatephorus cucumeris*, 440
- Thielaviopsis basicola*, 456
- Trichodorum christiei*, 483
- Trifolium repens* over-wintering reservoir of peanut stunt, 476
- Tylenchorhynchus* sp., 483
- Vascular wilt, see
  - Fusarium diseases, 449
  - Pythium diseases, 459
  - Verticillium wilt, 454
- Vectors of virus diseases, see
  - Aphis* sp., 476
  - Myzus* sp., 475
- Verticillium albo-atrum*, 454
- V. dahliae*, 454
- Verticillium wilt, 454
- Virus diseases, 473
- White clover over-wintering reservoir of peanut stunt, 476
- Wilt, see
  - Fusarium diseases, 449
  - Pythium diseases, 459
  - Verticillium diseases, 454
- Xiphinema diversicaudatum*, 483
- Yellow mold, 468

*Early History and Origin*

- Archaeological record, 31
- Center of origin, 17
- Chronological history, 18
- Dispersion of *Arachis hypogaea*, 34
- Distribution of the genus *Arachis*, 33
- Ethnological comparisons, 36
- Geographic origin, 32
- Linguistic affinities, 37
- Origin of the cultivated peanut, 34
- Runner type, 36
- Spanish type, 36
- Subspecies of *Arachis hypogaea*, 34
- Valencia type, 36
- Vernacular names for peanuts, 28
- Virginia type, 36

*Economic Importance*

- Acreage and yield, 3
- Early references to U. S. production, 4, 6, 8
- Farm value in U. S., 8
- Producing areas in U. S., 8
- Uses, 10

*Genetics of Arachis hypogaea*

- Albino seedling, 143
- Arachis* sp., leafspot resistance, 157
- Brachytic, sterile, 140
- Branching, inheritance, 139
- Chemical mutagenesis, 155
- Chlorophyll deficiencies, 142
- Combining ability, 159
- Correlations, 161, 165
- Crosses, intraspecific, 136, 143
- Crosses, interspecific, 164
- Crosses, intervarietal, 136
- Cytogenetics, 167
- Diseases, host plant resistance, 156

- Dormancy, inheritance of, 146
- Floral characteristics, 141
- Fruit characteristics, 145
- Genetic variability, 159, 160, 161, 162, 163, 166
- Genetic vulnerability, 158, 162
- Habits of growth, 137
- Heterosis, 160
- Heritability, 161, 162, 163, 164
- Inflorescence, 140
- Insects, host plant resistance, 158
- Leafspot, 156
- Linkage, 158
- Multicross testing, 144
- Mutations, induced, 153, 154, 155
- Natural outcrossing, 166
- Pedigreed natural crossing, 166
- Plasmon, 138, 139
- Qualitative characters, inheritance of, 137
- Quality attributes, correlations in, 165
- Quantitative characters, inheritance of, 159
- Radio sensitivity, 154
- Rosette, 157
- Seed characteristics, 145
- Sterility, 142
- Testa color, 145
- Variability, genetic, 166
- Variability, in germplasm pool, 160
- Variability, in segregating generations, 163
- Variability, natural outcrossing, 166
- Variegation, 152
- X-ray, mutations induced by, 153

*Harvesting Practices*

- Current harvesting practices, 502
- Early 1900 harvesting practices, 495
- Labor requirements, 501
- Peanut shaker-windrower, 500
- Peanut combine, 507
- Peanut digger-shaker-windrower, 504

*Insect Pests*

- Almond moth, 415
- Anticarsia gemmatalis* (Hbn.), 401
- Banded cucumber beetle, 412
- Beet armyworm, 405
- Burrowing bug, 413
- Cadelle, 417
- Corn earworm, 384
- Dermestids, 417
- Diabrotica balteata* Lec., 412
- Diabrotica undecimpunctata howardi* Barber, 412
- Elasmopalpus lignosellus* (Zeller), 405
- Empoasca fabae* (Harr.) 393
- Ephestia cautella* (Walk.), 415
- Fall armyworm, 387
- Feltia subterranea* (F.), 390
- Flour beetles, 416
- Frankliniella fusca* (Hinds), 397
- Granulate cutworm, 390
- Graphognathus* spp., 408
- Heliothis zea* (Boddie), 384
- Heteroderes* spp., 412
- Indian meal moth, 415
- Leafhopper, potato, 393
- Lesser cornstalk borer, 405
- Oryzaephilus surinamensis* (L.), 416
- Minor soil insects, 414
- Pangaeus bilineatus* (Say), 413

*Insect Pests—Cont.*

- Plodia interpunctella* (Hbn.), 415
- Red-necked peanutworm, 405
- Saw-toothed grain beetle, 416
- Southern corn rootworm, 412
- Spodoptera exigua* (Hbn.), 405
- Spodoptera frugiperda* (J. E. Smith), 387
- Stegasta basqueella* (Chambers), 405
- Strigoderma arboricola* (F.), 43
- Tenebroides mauritanicus* (L.), 417
- Thrips, tobacco, 397
- Tribolium* spp., 416
- Velvetbean caterpillar, 401
- White-fringed beetle, 408
- White grubs, 413
- Wireworms, 412

*Irrigation and Water Use*

- Capacity of irrigation systems, 378
- Evapotranspiration, 362
- Field capacity, 368
- Irrigation frequency, 371
- Methods of irrigation, 377
- Permanent wilting percentage, 368
- Quality of irrigation water, 375
- Rate of water application, 371
- Response to irrigation, 373
- Soil-water holding capacity and movement, 366
- Soil-water pressure, 367
- Water use, 362

*Marketing*

- Acreage allotments, 663
- APREA, 603, 666
- Code of good practices, 665
- Concepts of marketing, 658
- Exports, 674
- Functions, 657
- Grading, 661
- Hulls, 675
- Meal, 673
- News reports, 5
- Oil, 673, 675
- Parity, 662
- PIWG, 603, 666
- Peanut Administrative Committee, 665
- Price Supports, 662, 676
- Quotas, 663
- Role of government, 660
- Sampling, 665
- Storage, 667
- Uses of peanuts, 673

*Peanuts and Human Nutrition*

- Amino acids, 595
- Calories, 593
- Composition, 593
- Food uses, 594
- Oil, 595
- Peanut beverages, 601
- Peanut butter, 596
- Peanut candies, 599
- Peanut cookies, 599
- Peanut flour, 600
- Peanut sticks, 9
- Partially defatted peanuts, 599
- Roasted peanuts, 599
- Standards for peanut butter, 598

*Physicochemical Properties of Peanuts*

- Calories, 212
- Color, 236, 237
- Composition
  - Carbohydrates, 225
    - Non sugars, 226, 227
    - Sugars, 225, 226
  - Carbonyl compounds, 240
  - Enzymes, 234, 235
  - Gross, 210-212
  - Inorganic constituents, 235, 236
  - Lipids, saponifiable
    - Fatty acid, composition, 216
    - Fatty acids, in distinct tissues, 217
    - Fatty acid, esters, 215
    - Glyceride, composition, 220
    - Phospholipids, 218-220
    - Phytosphingolipids, 220
  - Lipids, unsaponifiable
    - Hydrocarbons, 223
    - Pigments, 222
    - Sterols, 221
    - Terpenes, 223
    - Tocopherols, 223
- Oil
  - Acetyl value, 213, 214
  - Iodine value, 213, 214
  - Properties, 213
  - Reichert — Meisel value, 213, 214
  - Saponification value, 213, 214
  - Stability, 224
  - Thiocyanogen value, 213, 214
  - Vitamins, 227-234
- Factors affecting compositions and properties, 210
- Peanut flavor and aroma, 239-242
- Physicochemical changes due to heat, 255, 256
- Roasted peanut flavor and aroma, 242
  - Chemistry of flavor compounds, 243
  - Compounds identified, 246-251
- Subcellular particulate bodies, 238, 239

*Peanut Proteins*

- Aleurone grains, 581, 582, 583
- Amino acids, 565, 573, 575, 576, 581
- Arachin, 562, 566, 567, 571, 576
- Ardil, 569
- Conarachin, 562, 567, 568, 571, 573
- Cryoprecipitation of protein, 577
- DEAE-cellulose chromatography of proteins, 570, 571, 578
- Electrophoretic mobility, 567, 578
- Electron microscopy, 582, 583, 584
- Fire extinguishing liquid, 570
- Globoids in Peanuts, 584
- Glue, 569
- Immunochemistry, protein, 584
- Ion-exchange fabrics, 564
- Isoelectric point, 562, 563
- Light scattering of protein, 567, 568
- Lypro, 564
- Manganin, 575
- Moulding powder, 570
- Nitrogen conversion factor, 561
- Optical rotary dispersions of proteins, 575
- Paper sizing, 570
- Peptide bonds, 561
- Peptide chains, 560
- Phytohemagglutinin of peanuts, 579
- Protein, 559

*Peanut Proteins—Cont.*

- Protein bodies, 581
- Protein color, 564
- Protein composition of seeds, 562
- Protein cross-linking, 561
- Protein dissociation, 566
- Protein isolation, 561, 562
- Protein molecular weights, 566, 568
- Protein sedimentation, 565, 573, 574
- Protein solubility, 562
- Sarelon, 569
- Spherosomes in peanuts, 584
- Subcellular particles, 584
- Subcellular distribution, proteins, 580
- Ultraviolet absorption of protein, 568
- Urea denaturation, 566
- Viscosity of protein dispersions, 568
- Window shade coating, 570

*Quality Standards and Measurements*

- Aflatoxin, 629
- Analysis of variance, 614
- Blanchability, 644
- Carbohydrates, 638
- Chemical changes, 636
- Cler flavor score, 645
- Components contributing to flavor, 649
- Color, 640
- Defining quality, 604
- Error and risk, 608
- Experimental designs, 611
- Evolutionary operation, 617
- Fat, types, 634
- Flavor and shelf life, 645
- Grade standards, 628
- Hull hardness, 644
- Kernel hardness, 641
- Mean and Standard Deviation, 605
- Measuring maturity, 629
- Measuring moisture, 631
- Measuring oil, 632
- Measuring salt content, 639
- Operating characteristic curves, 608
- Peanut Butter, 642
- Philosophy of quality, 604
- Physical characteristics, 636
- Precision and accuracy, 607
- Protein, 637
- Quality control, 651
- Regression analysis, 617
- Response surface methodology, 615
- Shelf life, 649
- Sample preparation, 624
- Sampling, 620
- Sampling devices, 623
- Sanitation, 627
- Statistical techniques, 605
- Test of significance, 607
- Texture, 641
- Wholesomeness, 627

*Soil Properties, Mineral Nutrition and Fertilization Practices*

- Abortion of ovules, 274
- Boron
  - Deficiencies, 287
  - Functions, 287
  - Requirements, 287

- Calcium
  - Functions, 283
  - Interactions, 283
  - Deficiencies, 283
- Copper, 290
- Hollow Heart, 287
- Iron, 290
- Lime, 284
- Manganese
  - Availability, 288
  - Deficiencies, 289
  - Functions, 289
  - pH effect of, 289
- Magnesium
  - Functions, 283
  - Interactions, 284
  - Deficiencies, 284
  - Nutrition, 284
- Micronutrients
  - Iron, 286
  - Manganese, 286
  - Zinc, 286
  - Copper, 286
  - Boron, 286
  - Molybdenum, 286
  - Chlorine, 286
- Molybdenum
  - Deficiencies, 288
  - Functions, 288
  - Interactions, 288
  - Oxidation—reduction, 288
- Nitrogen
  - Functions, 276
  - Fertilization, 276
  - Interactions, 277
  - Assaying for, 277
  - Levels, 278
  - Rhizobium* sp., 278
- Nutrient element, 273
- Nutrient response
  - U.S.A., 275
  - World, 275
- Phosphorus
  - Functions, 278
  - Deficiencies, 278
  - Fertilization, 278
  - Levels, 279
  - Interactions, 279
  - Analysis, 279
  - Effect on *Sclerotium rolfsii*, 280
- Potassium
  - Functions, 280
  - Deficiencies, 281
  - Fertilization, 281
  - Anomalies, 281, 282
- Rotation, 273, 274
- Soil
  - Description of, 271
  - Properties of, 272, 273
  - Fertilization, 273
  - Limiting factors, 273
- Sulfur
  - Functions, 285
  - Deficiencies, 285
  - Interactions, 285
  - Nutrition, 285
- Zinc, 290

*Structure and Genetic Resources*

- Arachis*, classification, 89
- Basis for subspecific differentiation in *A. hypogaea*, 71

*Structure and Genetic Resources—Cont.*

- Centers of origin of *A. hypogaea*, 76
- Cultivar groups of variety *hypogaea*, 75
- Flower and fruit, 54
- Gene centers, 72
- Germ plasm
  - Conservation, 127
  - Geographic and genetic isolation, 123
- Interspecific hybridization in *Arachis* L., 125
- Introgressive hybridization, 72
- Key to sections of genus *Arachis* L., 92
- Ontogeny and maturation, 58
- Reproductive vs. vegetative branches, 70
- Seed and seedling, 47
- Subordination of the species of *Arachis* L., 96
- Subspecies *fastigiata*, 73
- Subspecies *hypogaea* Krap, et Rig. 73
- Variety *fastigeata*, 73
- Variety *hirsuta*, 73
- Variety *hypogaea*, 73
- Variety *vulgaris*, 73

*Water Relations*

- Diffusion pressure deficit, 266
- Sensitivity to drought at various stages of growth, 267
- Stomates, 266
- Transpiration, 266
- Transpiration ratio, 266
- Water potential, 266, 267
- Water status, 265, 267
- Wilting turgor, 266, 267

*Weeds and their Control*

- Cultivation
  - Flat, 336
  - Non-dirtting, 335, 336
  - Rotary hoe, 336
- Herbicides
  - Common names and technical description
    - Alachlor, 341
    - Benefin, 341, 342
    - Chloramben, 341
    - Dinoseb, 341, 342
    - Diphenamid, 341, 342
    - Naptalam, 341, 342
    - Nitralin, 341, 343
    - Sesone, 341, 343

- Trifluralin, 341, 343
- Vernolate, 341, 343
- Factors affecting activity, 346
- History of research and development, 336
- Interactions, 351
- Photochemical breakdown, 351
- Toxicity, 346
- Toxicology, 344
- Weeds, controlled, 345
- Weeds
  - Ecological shifts, 352, 353
  - Late season, 330
  - Most common, 323, 329, 334
  - Most troublesome, 333, 334
  - Nomenclature of common weeds
    - Barnyardgrass, 329
    - Beggerweed, Florida, 329, 332, 333, 334
    - Carpetweed, 329, 332
    - Cocklebur, common, 329, 332, 333, 334
    - Copperleaf, 329, 332, 333, 334
    - Crabgrass, 329, 332, 333, 334
    - Croton, 329, 332, 333, 334
    - Crowfootgrass, 329
    - Foxtail, 329
    - Goosegrass, 329, 332
    - Horsenettle, 329, 333, 334
    - Jimsonweed, 329, 332
    - Johnsongrass, 329, 332, 333, 334
    - Lambsquarter, common, 329, 332, 333, 334
    - Morningglory, smallflower, 329, 332, 333, 334
    - Morningglory, tall, 329, 332, 333, 334
    - Nightshade, silverleaf, 329, 332, 333, 334
    - Nutsedge, purple, 329, 332, 333, 334
    - Nutsedge, yellow, 329, 332, 333, 334
    - Panicum, fall, 329, 332, 333, 334
    - Panicum, Texas, 329, 332, 333, 334
    - Pigweed, 330, 332, 333, 334
    - Purslane, common, 330, 334
    - Pusley, Florida, 330, 332, 333, 334
    - Ragweed, 330, 334
    - Sandbur, 330, 332, 333, 334
    - Sedges, annual, 330
    - Sicklepod, 330, 332, 333, 334
    - Sida, 330, 332
    - Signalgrass, broadleaf, 330, 333, 334
    - Smartweed, Pennsylvania, 330
    - Starbur, bristly, 330, 332