SUPPLEMENTARY FILE I:
Main headings for cultural control in 43 weed control textbooks.

Key:
in **thick** characters = specification of "cultural"
in *italic red* characters = "rotations", with their descriptors.
**highlighted in yellow**: strategy terms
"sp." (for a rotation) = simple reporting of the different species cultivated
"I" = integrated
"W" = weed
"M" = management

Shaw 1892 (no bibliography)
Principles in **destroying** weeds 5-9: drop certain crops out of the *rotation*; eradication / soil and climate; purchasing seeds (in the seeds of clovers, grasses, cereal grains); clean machines; hoed crops as far as practicable; grow clover and lucerne (smothering); keep the land growing crops (ex. 2 crops a year); autumn cultivation; fermentation of the manure.

Shaw 1893 (no bibliography)
Evils: labor for cleaning grain 9-11; interfere with a regular rotation 12; responsible of the bare fallow 13.
Methods of **destruction**: modify the *rotation* 62-63; clean seed 65-67; clean machines 67-68; hoed crops 69-71; grow clover and lucerne 71-73; soiling crops 73-75; land constantly at work 78-79; produce plentifully 79-81; autumn cultivation 81-82.

Bolley 1908 (no bibliography)
Seed inspection laws 533-535.
Methods of holding weeds in **control**: fallowing 535; *crop rotation (sp.*) 538; pasturing 538; smothering 538-539; composting 539-540...

Long & Percival 1910
General **preventive** and remedial measures: prevention (dense crop 30; clean seed 31-2; *rotation of crops (sp., winter vs. spring, root crop = clean farm)* 32-3); **remedy** (fallowing 34-36; mowing 36; irrigation 39-40; manuring -nitrogenous-, liming 41-2).

Pammel 1911
Interest in good seed... 27-49.
**Extermination**: *rotation of crops (sp., small grain, pasture)* 88-9; summer fallow 93-94; fungi destructive of weeds 193.

Brenchley 1920
Prevention and eradication: **prevention** (legislation agricultural seeds, neighbour farmer; clean seed, clean farm machinery, seed formation) 43-45; **eradication** by methods of cultivation (roots...
cleaning crops, smother - lucerne, clover…, fallowing) 46-52 lime 68.
Association with crops: among one crop as another, associated vs. discouraged / root crops, temporary grass or clover; seeds crops, cereal... 162-173.

Muenscher 1936
Dissemination and importance: impurities in agricultural seeds 18;
Control: Preventing spread into new area (clean seed, machinery) 54-5. Destroying the tops: grazing, mowing 59 -60; burning 60. Destroying the underground parts: summer fallow 63-64; rotation (clean cultivated, grain, clover, grassland for hay or pasture) 64-65; drainage 65; smother crops 65; mulch 66-67.

Robbins & al. 1942
Dissemination: cleaning seeds 27.
Preventing introduction: clean harvester and other implements 63; clean seeds 64-65. ; Principles of control: mechanical methods, hand 84-5; flooding 87; burning 92; mulch 94.
Cropping methods: rotation (smother crops) 96.
Competition: crop (sp., cv.) 124; water (irrigated, drainage) 127; soil fertility (nitrogenous fertilizers) 127; liming 128; date and rate of seeding 129-131; rotation (competitive crop) 131-132; smother crops 132.
In small grain: cropping methods (rotation clean-cultivated and competitive crops) 415; in rice (cropping methods: rotation -soybeans-) 418.

Bates 1948
Control at source: seed cleaning 33-35.
Control by cultivation: row-crop cleaning 47; summer fallowing 51-52; smother crops 52-53; mechanical action of livestock 54-56.

Ahlgren & al. 1951
Control practices: cultural control (crop rotations, smother or competing crops, fallowing, mowing, grazing, composting) 2-4. Influence of ecology: competitive crops sow.. Season, dense stand, spacing of seeds, cultivating before emergence / potatoes, tall growing crops, wet vs. dry soil: 6-9.
Principles of control and eradication: control, prevention and eradication 15-16; cheap crop seeds, machinery... 16-18; burning, storage in manure 19-21; burning 29; competition crops, smothering, (mulching) 29-30; rotations (row crops, grain crops, competitive crop, hay field or pasture) 30.
Small grain: clean seed 126-127; crop rotation (drilled and row crops, competitive) 127; competition 127-128.
Legumes: clean seed 159-152, date of seeding 163-164; rotation (row crops and small grain, competitive) 162; competition, mowing 164-165.

King 1966
Non-chemical methods: flooding (in paddy rice, control of perennial in other crop-land) 408; fire 408-9 ; clean crop seed 409 ; grazing of animals (mamals, fish) 417 ; competitive cropping
Muzik 1970
Weed establishment: competitive ability (cv. 63; fertility 64; date and rate of seeding 64; crop rotation (row crops vs. broadcast crops, spring vs. fall-planted crops) 64-5; stale seedbed: 65). Physical methods: mowing 71; flooding 71; fire 72-3; mulching 73-4; competition (tall growing crops) 74-5; nurse crops 75; timing of operations 76.

Craft 1975
Reproduction and spread: man (seed) 25-26. Preventive W control: clean seed 57; crop rotation (sp.) 58; weed free seed 59-60; machinery 60-61; livestock management 61-63; manure 63. Ecology of weeds: weeds and soils 70-72; competition (earlier wheat sown/quackgrass, moisture) 74-76; vigorous stands of crop plants (cultivar, water, fertility, date and rate of seeding, crop rotation (sp., type of implements, alfalfa occasional, competitive crops, tillage operations, herbicides) 87-91. Principles of W control: control vs. eradication 102; mechanical methods (mowing 119; flooding 113-114; burning 115-116; smothering with non-living materials 118-119); cropping and competition methods 119-120.

Fryer & Matsunaka 1977
Damage: yield components of rice (/ sp. overtops rice vs. sp. only on the lower layer with higher nitrogen concentration) 4-5; fertilizer management / rice (contrary effects high nitrogen / sp) 8-10; improving cultural methods (planting time, spacing, fertilizer management, optimum time of control) 11. IWC in rice: preventive measure (clean crop seeds, manure, cleanliness of equipment, water 23; soil preparation 23-24; water management (ex. flooding govern barnyard grass, drainage) 24-25; crop rotation (winter crop / perennial weeds,...) 25; phosphate and nitrogen stimulate weeds (barnyardgrass,...) 29; dense planting preventing emergence + animal-power harrowing) 29; transplanted vs. direct seeded 33-34; IWM (combination + interrelation of cultural and chemical) 38-41.

Klingman & Ashton 1982
Prevention, control and eradication: crop seeds, machinery 12-13. Methods of control: mowing 21; crop competition 23-25; rotation (summer row crop, winter grain crop, competitive crop, herbicide rotation) 25. Small grains: clean seed 297; rotation (be grown for several years, herbicides rotation, sp., time of cultivation...) 297; competition (fast-growing grains, fertility... 298. Small-seeded legumes (alfalfa...): clean seed 309-310; date of seeding 310; mowing 311; competition (water, fertilization) 311.
Stephen 1982
Control without herbicides: flooding 66; burning 66-67; mulching 68-69.

Anderson 1983
Control: preventive (weed-free crop seed) 67; cultural (smother crops, rotation (cultivated crops vs. non cultivated) 71; mowing 72; water management (flooding) 72-73; smothering with nonliving material 73; burning 75.

Gwynne & Murray 1985
Weed origins: rotations 18; seed cleaning 21-22.
Control methods: non-chemical 40-41.
Other weeds: non-chemical (seed-rate, fertilizer, cv., drainage) 117; cultural 126-127.

Ross & Lembi 1985
Control: mechanical (mowing 31-3; mulches 33-4; flooding 34; fire 34-5); crop competition (smother crops, competitive crops, crop rotation (e.g. herbicides) 35-39.

FAO 1986 (no bibliography)
Control: mulching 24; cultural control: crop interference (competitive crop, multiple cropping) 25, fertilizer placement 25, timing plantation, liming 25, rotation (spring / autumn seeded, different herbicides) 25-26.
In crops: cultural practices (planting date, seed source clean vs. contaminated, fertilization, pasture following harvest, fallow...) 128; cropping patterns (crop, spacing and density, rotation...) 128-129.

Altieri & Liebman 1988
Intercropping: crop density 205-6; spatial arrangement 206; crop species and cv. 206-7; soil fertility 207.
Management systems: dispersal of seeds (contamination of crop seeds 216-7; harvesting equipment 217-8); edaphic factors (soil pH and drainage, irrigation 218-9; soil fertility (N increased or discouraged W sp.; K increased Striga / maize) 219); cultural practices (rotation (different harvesting dates, fooling crops vs. cleaning with mechanical, time planted, graminicides) 220-1; spatial arrangement (row widths) 221-2; straw dispersal + burning 223-4).
Management of pathogens and insects for weed control 245-264.
Organic systems: timing of field operations 307-8; seeding rate & cv. (soybean) 308-9; cropping systems (intercropping, rotation (competitive vs. non-competitive corps, perennial phases, alfalfa, winter vs. summer crops), cover crop, undersowing, summer fallow 309; graze weeds 309; mulching 309-10; composting 310-1; fertility 311-4.

Zimdahl 1993
Seed dispersal: storage manure 72-74; machinery (clean seed, combines,...) 74-76.
Environmental: edaphic factors (weeds / low in fertility vs. well fertilized, flooding, pH) 97-98.
biota (cultural operation and rotational practices / crop, harvest practices) 98-101.
Plant competition: fertilization (nitrogen and wild oats) 114-6; light (crop density) 119-120.
Allelopathy and interference: mass of plant residue and rotation 143-144; weed management (allelopathic activity in crop plants, height density, plant residues, allelopathic rotational, companion plants) 143-145.
Weed management: prevention, control, eradication 160; prevention (clean seed, farm equipment...) 161-166; tillage timing 173-5; mowing 176; flooding, draining... 176-7; solarization 178-179; mulching 179. Cultural (crop competition 180-1; companion crop 182-3; crop rotation (sp., herbicide, control techniques) 183-5; fertility manipulation 185-6.
Management systems: small grain crops (prevention (seed weed free, machinery); cultural (seeding rate, time, tall wheat cv., rotation -sp., winter vs. spring)) 380-383; corn and row crops (cultural (rotation -sp.-)) 388; perennial, alfalfa (prevention, cultural (planting time, grazing, planting with nurse or cover crop) 394-5.

Labrada & al. (F.A.O.) 1994
Cultural practices: (prevention, crop interference, time of planting, soil amendments, water, rotation, fire, mulching) 161-170.

Smith & al. 1995
Preventive: farm management practices (clean crop seed, smother crops, crop rotation (cultural practices, previous crop, grass vs. broadleaf crops, legumes, herbicides, mechanical vs. chemical) 36-39; clean farm equipment 40; management of animals and manure 40-43; irrigation waters... 43-44.
Integration of mechanical with other management methods: preventive introduction into a field 79-80; cultural (planting date, seedling rate, competitive crop, tall crops, tall cultivars of small grain, fertility, cover crops, smother crops) 80-84.
Biological management 283-303: crop competition, choice of crops, cultivars, multiple cropping, allelopathy, cover crops and their residues, grazing.
Oil seed crops: weed interference and competition (row width) 344-346; management strategies (crop and herbicide rotation -sp.-) 350.
Grain crops: non-chemical methods (competitive varieties / wheat, shoot density, planting at optimum dates,...) 411, 429-431, 435-436, 438-439, 446-448.

Aldrich & Kremer 1997
Production practices affect weeds: weed introduction (infested crop seed, machinery...) 364-365; effect of crop production practices on weed changes (cropping practices: cv., previous crop, rotation (sp.), crop density, pattern and spacing, soil fertility, timing fertilizer application...) 369-376; combined effects of cropping, tillage, and herbicides 383.
Weed management system: prevention (reducing propagules) 388, 400-404; rotation (sp) 419-422.
Buhler & al. 1997
Increasing crop competitiveness / breeding: (crop tolerance and crop interference; selection criteria, critical events in crop and weed life cycles, plant residues) 59-76.
Genetic of cover crops: components of interference, characteristics amenable 77-93.
Soil quality: interspecific interference (species specific), fertility management, cover cropping and green manuring 95-121.
Soil seed banks: prevention of seed introduction on farm (crop seed, manure...) 150; decision about seed levels (eradicate, decrease, tolerate) 151-152; strategy seed populations (active to dormant, dormant to active, undesirable to desirable species 152-154.
Multiyear model / crop and tillage conditions (rotation sp., herbicides) 207-224.
Levels of integration / weed management: scale (spatial, temporal), method, knowledge base, crop rotation, herbicides... 239-267.

Radosevich & al. 1997
Methods and tools of w management 335-395: prevention (inhibit establishment in areas : cultural (seed cleaning)), eradication from field-area, control, reduce W 335-336, methods ; physical 347-377 (hand, fire, flame, tillage, mowing, flooding, mulches, solarization), cultural 377-378 (prevention (crop seed, manure, harwesters...), crop rotation 378-379 (different crops from year to year, certain sp. associated with particular crops, solid-seeded crop like alfalfa or cereals to a row crop like..., different cultural techniques, crop production vs. fallow), crop competition 379-381, cover crops 381, harvesting 381), biological 382-387 (grazing, mycoherbicides, allelopathy – smother crops).

Liebman & al. 2001
Soil environment 210-268: ... fertility 220-229 when W exhibit stronger height and leaf area responses to fertilizer than do crops: fertilizer = negative effect, placement of fertilizer reduce W density 223.
Competitive ability of crops 269-321: crop density 270-281 (curves), spatial arrangement 281-287, crop genotype 287-297 (breeding for competitive ability: selection characters correlated with competitive ability is more efficient than selection on competitive ability), phenology 297-304.
Crop diversification 322-374/ crop diversity, rotation 326-336 (crop management practices, with or without herbicides, perennial forage crops (Elytrigia repens: density should be reduced during annual crops phases 335), cover crops; variation in timing of M practices, in soil conditions).
8)Insects and pathogens: pesticides detrimental / biocontrol agents 379.
9)Livestock grazing 409-443.

Monaco & al. 2002
IWM: management practices 45; scouting 45-46; prevention 46 (crop seed contaminated, propagules with machinery, manure..., recharge the soil seed bank, aras adjacent to fields, spread of vegetatively reproducing perennial); mechanical practices (... mowing 52, mulches 53-56, burning 56, flooding 56-57); cultural practices 57-64 (crop selection 57-59), crop rotation 59-60 (sp.; pastures often contain perennial W such as iron-weed and thistles), changes cultural conditions (planting dates, competing, fertility, herbicides); crop varieties 60-61; planting date 61; plant
population and spacing 63, fertility and irrigation 63-64 (W respond + to increasing nutrient level: better compet with crop).

Naylor & al. 2002
Non-chemical management: cultural (crop rotation -cleaning crop, competitive ley, fallow, intercropping, cover-crop-, choice of cultivar, plant spacing, limiting the introduction -farm machinery, crop seed,...) 280-286; direct management (steaming, solarization, mulching, living mulches, sheeden mulches,...) 286-294.
Integrated management: crop rotations (timing of sowing, canopy development, harvesting), choice of variety, seed purity,... crop nutrition strategy 307-308.
Winter cereals: rotation (winter vs. spring sowing, sp., herbicides), sowing date (early vs. late sowing), crop competition... 355-356...

Hakansson 2003
Plant adaptation and competitive conditions: W flora / fertilizer use 119-121: [sp.] many observations: W declined respond positively to fertiliszer in absence of competition from crops but negatively in dense crop stands; some W (Chenopodium album) obviously often more favoured by high fertilizer levels than the crops; competitive conditions in different crops 121-123.
Special management measures 214-221/ Cover crops (breakage by mechanical +-herbicides) and mulches (mulch large: small and large-seeded W different influenced; seedlings from small seeds have greater difficulties in penetrating). Harvesting – timing and methods 217-218: variation = diversified crop sequences; later harwesting = stronger selection between early and late maturing seeds; tall stubble = more W seeds left in the field + Elymus repens younger, more active shoots largely escape cutting; roots crops: breakage of vegetative parts of perennial W, time of year is decisive. Breeding for increased competitive ability of crops 218-219: crops exerts a stronger competitive effect as a result of more rapid ground cover; degree of cv. shaded the W in decisive growth period; selectively acting substances. Biological control 219-221: augmentation strategies, system management.

Saraswat & al. 2003
Agronomic practices: planting or sowing time, clean seed, stale seed bed, row spacing, seed rate, crop rotations (sp., smothering, transplanted rice), intercropping, mulching, water, nutrient 75-86.
In cereals: rice, cultural (stale seed bed, flooding) 184-185; maize, cultural (crop rotation, higher plant population, early application of nitrogen and its placement, mulching, intercropping with smoother crops) 186; wheat, cultural (stale seed bed, higher seed rates, closer spaceint, rotations) 191 ; ...
In cash crops: cotton: agronomic practices (unlike cereals, early planted...) 199-200...

Singh & al. 2006
Weed management: cultural methods (competitive crops 5; crop rotation, use of cover, smother crops, genotypes better competitive and allelopathic, sowing and planting dates, crop density 6);
cultural advantages/disadvantages : fig.1.1 18.
Cover crops (evidence, mechanisms) 63-78.
Rye as a weed management tool in vegetable cropping systems 131-66
Rotation in semiarid (sp., numbers of annual summer vs. winter crops, row, herbicides, fallow 167-188.
Crop rotation in the Canadian Prairies (spring wheat vs. fallow, winter, herbicides, forage and cover crops...) 189-220.
Strategies / herbicide-resistant weeds: non-herbicides strategies (crop rotation - herbicides, competitive crops and cv., fallow- 643; seeding dates and rates 644; tillage 644; reducing gene dispersal 644-6).
Integrated turfgrass management: cultural methods (lime+) 865-6; nutrition, irrigation +- 868 ; sunlight reaching the ground 870.

Rammoorthy & al. 2006
Tillage and weed control: chemical fallow, double crop, sleeping sod (cover crop), sod planting, stale seedbed, stubble-mulch 172-177.

Gupta 2007
Prevention and control: prevention (crop seeds, clean the farm machinery...); eradication 70-76.
Cultural methods: good crop husbandry practices ; proper crop stand ; selective crop stimulation (fertilizers in the seed rows ; crop rotation (break crops, sp., frequently grazed or cut forage crop, wide row crop) ; summer tillage ; soil solarisation ; mulching ; intercropping 77-82.

Upadhyaya & al. 2007
Prevention strategies: crop seeds 3-4; machinery 4-7; manure 7-10; prevention, cropping patterns (fertilization, harvest...) 12.
Weed-crop interaction: crop density (equations, processes) 23, 27.
Cultural management: crop rotation (different life cycles, planting and harvest dates), crop competition and species and cv, uniform crop establishment, planting pattern, crop density, delayed seeding, flooding, fertilization, manure, cover crops, crop canopies, crop residues... 35-47.
Cover crops: 49-64.
Non-living mulches (sheeted and particle mulches) 135-153.
Soil solarization (principles, four categories according to the response: susceptible vs. stimulated) 177-200.

Pawar 2009
Preventive methods: crop rotation (different growing period, fallow, competitive ability of crops...) 38-39; cover crops 39-41; soil solarisation 46; drainage and irrigation 46-47; cultural methods (sowing time, crop genotype, cover crop, intercropping, fertilization) 47-50.
Cultural methods: planting density and spacing, mixed crops, timing of seeding and planting, fertilization, liming, manuring, irrigation, drainage, harvesting procedures 161-169.
Walia 2010
Ecology and competition: cultural/competition (crop rotations -sp., adjusting dates of sowing, quick growing crops/varieties, increasing plant density, intercropping, mulches...) 71-72.
Methods of control: preventive methods (clean seeds, manure, clean machinery...) 86-87; interculture (in wider row sown crops) 88; flooding 88; cultural methods (crop rotation -sp., herbicide-, date of sowing, plant density, planting pattern/ uniform distribution of crop, placement of fertiliser, quick growing varieties, mulching (wheat straw for maize), irrigation, soil solarization) 89-93.

Chaudhary & al. 2011
Weed management: cultural method: prevention (crop seeds, clean machinery, manure, crop management practices -...) vs. eradication + control 14-17; cultural (crop competition..., rate of seeding, fertilization, planting time, summer fallowing,... smother cropping, crop rotation -kind of crops-) 17-22; mechanical/physical (mowing, grazing, burning, flooding, mulching, soil solarization) 22-32.
Management in crops: rice (indirect methods: cultivar selection, cultural practices, fertilizer) 92-93; wheat (cultural: closer spacing induced smothering) 96; maize (cultural: intercrops, seed rate, placement of fertilizer, straw mulching) 97...

Subramanian & al. 2011
Allelopathy (crop residue...) 100.
Control: preventive (infested crop seeds, manure, clean machinery, nursery stock...) 101; crop management (crop varieties, placement of fertilizer...) 102; weed free crop seeds 102; cultural (planting time / seasonal weeds, optimum plant population, crop rotation -sp., intercrops, mulching, flooding and drainage, crop management practices) 107-110.
In dry lands: crop rotation (mixed cropping), inter crops (smother) 233-234.

Hatcher & Froud-Williams 2017
W science research, perspectives: factors (succession, clean seed, rotation-season of sowing-, fallow, cultivation, soil amelioration, drainage and fertiliser use) 1-6.
Descriptive and mechanistic models of crop-W competition: W suppressive cultivars. 50.
Non chemical W management: preventive and cultural control; objectives; cover crops and mulches; etc.) 246-253.
W management systems in vegetables: IWM (preventive measures: species introduction, dispersion and development of infestation, W free planting material, opportune soil tillage and soil drainage, cleaning cultivation and harvester machineries, irrigation water, etc.) 366; cultural methods (crop rotation with different life cycles / unstable environment resource competition, allelopathic interference, soil disturbance, type of vegetation -leaf crops, root and tuber crops, bulb crops, fruit crops-, crop cycles, low and high competitive ability, family, fallow, etc.) 366-368; cover crops, stale seed-bed preparation, cultivar selection, planting methods, etc. 366-368; physical (non-living mulches, etc.) 369; etc.
Jabran & Chauhan 2018
Overview and significance of non-chemical weed control (preventive strategies, cultural, allelopathy, ...: 5; IWM) 1-8.
Weed control using ground cover systems 61-72.
Weed control through crop plant manipulations (cover plants, intercropping, cash crops, cultivar) 73-96.
Agronomic weed control: a trustworthy approach for sustainable weed management (preventive practices 98, crop density, row spacing, sowing time, competitive cultivars, crop rotations (autumn vs. spring, annual vs. perennial, closed and open canopies, herbicides, cultivation practices, tap rooting vs. fibrous, leguminous vs. non, exhausting crops vs. less demanding, family), intercropping and cover crops, nitrogen fertilization) 97-115.