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R-looping The technique in which an RNA molecule is annealed to the complementary strand of a partially denatured DNA molecule. The formation of an RNA-DNA hybrid region displaces the original DNA strand in the form of a loop extending over the region of hybridization. These R-loops can be visualized under the electron microscope using the Kleinschmidt technique.

race A phenotypically, geographically, ecologically, and/or genetically distinct group, usually within a subspecies. *Usage:* Not covered by the botanical code of nomenclature. *Compare* cultivar; strain; variety.

rancidity (1) Off-flavor and aroma that occurs when foods or feeds containing oil deteriorate. It is the result of oxidation of lipids (oils) to form volatile compounds, including aldehydes and fatty acids. (2) Another form of rancidity is caused by hydrolysis of the glycerides (oils and fats) to form free fatty acids; this is the major cause of rancid butter.

range management The science of maintaining maximum range forage production without jeopardy to other resources or uses of the land.

ration The total amount of feed (diet) allotted to one animal for a 24-hour period.

raw cotton Ginned lint that has not been subjected to any textile manufacturing process.

rDNA Ribosomal DNA: The genes encoding ribosomal RNA that usually comprise a multigene family in eukaryotes. *Usage:* In the popular press but not in scientific writing, rDNA sometimes is used to refer to recombinant DNA.

realized genetic gain Observed difference between the mean phenotypic value of the offspring of the selected parents and the phenotypic value of the parental generation before selection.

rebuilding The practices that result in complete change of a turf area. *Compare* reestablishment; renovation.

reciprocal recurrent selection A type of recurrent selection for improvement of the cross between two populations. The selection procedure involves half-sib test crosses in which one population serves as the tester for evaluating individuals in the other population. This is done reciprocally, so that two sets of test crosses are evaluated and selection is applied to each population for combining ability with the other.

recognition site The nucleotide sequence to which a restriction endonuclease binds initially. For Type II restriction endonucleases (those used in gene-cloning experiments), it is also the sequence within which the enzyme specifically cuts the DNA target site. Type I enzymes, however, bind to their recognition site and then cleave the DNA at some more or less random position outside that recognition site.

recombinant DNA DNA molecules in which sequences that are not naturally contiguous have been placed next to each other by in vitro manipulations. The different sequences placed within a recombinant DNA molecule frequently are obtained from entirely different organisms.

reconstructed cell The viable cell reconstructed by the fusion of a karyoplast with a cytoplasm.

recropping A system in which land is cropped annually without a fallow period (i.e., continuously cropped year after year), or in a cropping rotation longer than one year. The land may be in a cereal grain, or an alternate crop may be inserted into the rotation.

reduced tillage A tillage system with aggressive primary tillage; may be performed in conjunction with special planting procedures to reduce or eliminate secondary tillage operations.

reel mower A mower that cuts turf by means of a rotating reel of helical blades that pass across a stationary blade (bed knife) fixed

Inari Exhibit 1072
Inari v. Pioneer

to the mower frame; this action gives a shearing type of cut.

regeneration (1) Laboratory technique for forming a new plant from a clump of plant cells. (2) The formation by an organism of new parts.

registered seed Progeny of breeder, select, or foundation seed handled under procedures acceptable to the certifying agency to maintain satisfactory genetic purity and identity.

regulation The degree to which a limiting factor or similar element actually controls a process.

relative humidity The ratio of the quantity of water vapor actually present in the air to the greatest amount possible at a given temperature.

release rate, fertilizer The rate of nutrient release following fertilizer application. Water-soluble fertilizers are termed quick-release or fast-release, while insoluble or coated soluble fertilizers are referred to as slow-release or controlled-release. *See also* residual response.

renaturation The process in which separated complementary strands of nucleic acid reform base pairs to form a double-stranded structure after denaturation. Some simple proteins can also be renatured and regain their function.

renovation Improvement of turf, usually involving weed control and replanting into existing live and/or dead vegetation. *Usage:* Does not encompass reestablishment or rebuilding.

replacement *See* gene replacement.

replication The duplication of genomic DNA or RNA as part of the reproductive cycle of a cell or virus.

replicon (1) That portion of a DNA molecule which is replicable from a single origin or replication locus. Plasmids and the chromosomes of bacteria, phages, and other viruses usually have a single origin of replication and the entire DNA molecule constitutes a single replicon. Eukaryotic chromosomes have multiple internal origins and thus contain several replicons. (2) A DNA molecule capable of independent replication.

reseeding Of turf: To seed again, usually soon after an initial seeding has failed to achieve satisfactory turf establishment.

residual response, fertilizer The delayed or continued turfgrass response to slow-release fertilizers, lasting longer than the usual initial response from water-soluble (i.e., quick-release) fertilizers.

residue biomass The biomass that remains after removal or utilization of part of the biomass by grazing, harvesting, burning, etc.

resins Sticky-to-brittle plant products derived from essential oils and sometimes possessing marked odors; used in medicines, varnishes, etc.

resistant Able to restrict, inhibit, avoid, or tolerate the activities of a specified pest, pathogen, or environmental stress.

rest *See* dormancy.

rest period The length of time that a given land area is allowed to rest. *Synonym:* spelling period.

rest-rotation grazing *Usage:* Not a recommended term. *See* rotational stocking.

restriction enzyme *See* restriction endonuclease.

restriction fragment length polymorphism *See* RFLP.

restriction site The specific nucleotide sequence in DNA recognized by a Type II restriction endonuclease and within which it makes a double-stranded cut. Restriction sites usually comprise four or six base pairs and have bilateral symmetry. For example:
 5'-G A G C T C-3'
 3'-C T C G A G-5'
 The two strands may be cut directly opposite to one another (to create blunt ends) or in a staggered manner (giving sticky ends), depending on the enzyme involved.

RFLP Variation within the DNA of different individuals caused by insertion or deletion of DNA between two restriction sites, or by mutations that destroy or create restriction sites. Polymorphisms are generally detected on Southern blots hybridized with a specific DNA probe. Such polymorphisms between individuals are useful as molecular markers for chromosome mapping and analysis of linkage to other genes or traits.

ribosomal DNA See rDNA.

ribozyme An RNA molecule that is capable of acting as an enzyme or exhibiting intramolecular catalysis such as self-cleavage or self-splicing. Some ribozymes cleave substrate RNAs in a sequence-specific manner analogous to DNA restriction endonucleases. Such specificity allows for modulation of gene expression by genetically engineering ribozymes to cleave specific transcripts.

ripe Fully grown and developed; mature.

RNA Ribonucleic acid.

RNA polymerase An enzyme that catalyzes the synthesis of RNA from a DNA template in the absence of a 3' primer molecule. Transcription in prokaryotes is accomplished by a single RNA polymerase that synthesizes all classes of RNA molecules. Eukaryotes have three RNA polymerases, with different transcriptional specificities: RNA polymerase I (or A) synthesizes the large rRNA precursor; II (or B) synthesizes mRNA; III (or C) synthesizes tRNA and 5S rRNA species.

roguing The act of removing or destroying off-type plants, other varieties, and objectionable weeds from a seed production field.

root culture The in vitro growth of roots. Root culture usually refers to root tip (meristem) on a synthetic medium.

rotary mower A powered mower that cuts turf by high speed impact of a blade rotating in a horizontal cutting plane.

rotational grazing *Usage:* Not a recommended term. See rotational stocking.

roughage Animal feeds that are relatively high in crude fiber and low in total digestible nutrients and protein.

row sprigging Planting of sprigs in rows or furrows.

ruminant Of or relating to a suborder of mammals that have a complex multichambered stomach.

run out To separate nucleic acid or protein molecules by gel electrophoresis.

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