Agricultural English

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Edited by

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FOREWORD

Agricultural English is a collection of essays on the English of Agriculture. It would appeal to *agriculturists, animal breeders, lexicographers, professors, researchers, students, and translators from Croatian-, English-, French-, German-, and Romanian-speaking countries, active in their own countries or abroad*.

The approach is a linguistic one with focus on **stylistic features** and **technical lexis**. The different aspects of the English used in the ***field of agriculture*** (agricultural practices, agricultural systems) and in some ***fields related to agriculture*** (agricultural zoology, agri-tourism, biology, botany, ecology, entomology, gastronomy, land measurement, plant pathology, and zoology) are analysed from several points of view.

Any language for specific purposes relies on several **morphological** ways of building up its own inventory of terms – abbreviation, affixation (prefixation, suffixation, and multiple affixation), backformation, change of morphological accent, composition / compounding, conscious / deliberate coinage, contraction, conversion, corruption, deflection, derivation from proper or personal names, folk / popular etymology. Only two of these procedures seem to be extremely productive in Agricultural English: *affixation* – the vocabulary of pesticides analysed by Georgeta Raţă and Anica Perković; *combination / compounding* – some of the practices associated with sustainable agricultural systems analysed by Anica Perković, Georgeta Raţă and Florin Sala, the combining forms with *bi(o)-* analysed by Alina-Andreea Dragoescu and Diana-Andreea Boc-Sînmărghiţan, the combining forms with *eco-* analysed by Anica Perković and Georgeta Raţă, the combining forms with *culture* analysed by Georgeta Raţă, Ionel Samfira and Anica Perković, and the combining forms with *tree* analysed by Georgeta Raţă; or a *combination of the two* – the vocabulary of ecology analysed by Georgeta Raţă and the cereals names analysed by Georgeta Raţă and Laura-Constantina Micu. The English verbs of animal communication analysed by Georgeta Raţă and Elena-Mirela Samfira are, no matter the source, the imitative / onomatopoeic.

From a **syntactical point of view**, all three teams of authors focused on agricultural entomology. Thus, Georgeta Raţă focused on verbal nouns in *-ing*, Georgeta Raţă and Laura-Constantina Micu analysed ‘verbal Noun +

Noun' compounds containing participial adjectives, verbal nouns, or having both values, while Anica Perković and Georgeta Raţă focused on the 'Noun + Verbal nouns in *-ing* + Noun' names of pests.

As far as the **lexicology** and **lexicography** are concerned, the authors focused on the terminology of precision agriculture (Georgeta Raţă, Florin Sala and Anica Perković), on the names of weeds (Anica Perković and Georgeta Raţă), on the vocabulary of irrigation (Georgeta Raţă, Cornelia Petroman and Ioan Petroman), on the names of fruits ending in *-berry* (Georgeta Raţă and Anica Perković), and on the various types of tourism practiced in the countryside (Georgeta Raţă, Anica Perković and Ioan Petroman).

Semantics is represented by papers in which the focus is on homonymy (Georgeta Raţă), homonymy and synonymy (Oana Boldea), lexical meaning (Oana Boldea), semantic fields (Anica Perković and Georgeta Raţă), specific meaning (Georgeta Raţă and Anica Perković; Cornelia Petroman, Ioan Petroman and Snježana Tolić).

Three papers deal with **pragmatics** issues. Thus, Georgeta Raţă, Ioan Petroman and Scott Hollifield focus on the academic discourse and on professional rhetoric in the field of botanical nomenclature, Oana Boldea analyses English idioms containing names of plants, and Alina-Andreea Dragoescu and Petru Dragoescu focus on creative metaphors in the naming of plants.

Etymology is very much under scrutiny since it is an important tool in understanding terminology. The Latin heritage is studied by Georgeta Raţă and Scott Hollifield in botanical English, by Georgeta Raţă and Camelia Giuchici in the field of plant pathology, and by Georgeta Raţă in zoological English, while Georgeta Raţă, Ionel Samfira and Anica Perković analyse the vocabulary of seeds and seedling, Astrid-Simone Groszler analyses the names of spices, and Georgeta Raţă and Florin Sala analyse the vocabulary of land measurement units – all from an etymological perspective.

The **contrastive approach** is illustrated by a large number of essays. Andreea Varga writes about agricultural terminology in the context of multicultural communication. English, Croatian and Romanian are compared by Anica Perković, Georgeta Raţă and Martina Perković (who analyse names of dog breeds); English and French are compared by Georgeta Raţă, Ionel Samfira and Camelia Giuchici (who write about names of plant diseases); English, French and Romanian are compared by Georgeta Raţă and Iasmina Iosim (who analyse the verbs of animal communication); English and German are compared by Astrid-Simone Groszler and Biljana Ivanovska (who write about plant names); English

and Romanian are compared by Georgeta Raţă and Anica Perković (who focus on the land improvement vocabulary), by Georgeta Raţă and Elena-Mirela Samfira (who analyse agricultural entomology), by Oana Boldea (who studies names of fodder plants, names of wild flowers, names of plants in food additive guides, names of pests), by Astrid-Simone Groszler and Biljana Ivanovska (who focus on plant names), by Georgeta Raţă (who deals with true and false "berries"), by Andreea Varga and Astrid-Simone Groszler (who deal with animal idioms), by Astrid-Simone Groszler (who focuses on animal idioms), and by Georgeta Raţă, Cornelia Petroman and Ioan Petroman (who study the Romanian of agri-tourism Internet sites); Romanian – English are compared by Oana Boldea (who writes about agricultural terms), by Alina-Andreea Dragoescu (who studies metaphorical plant names), and by Georgeta Raţă, Maria-Adriana Proca and Camelia Giuchici (who write about names of plant diseases).

The book would appeal to academic teaching staff, researchers and students in the field of **agriculture** and of some related fields – ***agricultural zoology***, ***agri-tourism***, ***biology***, ***botany***, ***ecology***, ***entomology***, ***gastronomy***, ***land measurement***, ***plant pathology***, and ***zoology*** – as well as in the field of **English for Specific Purposes (ESP)**.

The Editors

CHAPTER ONE

MORPHOLOGY

PRACTICES ASSOCIATED WITH SUSTAINABLE AGRICULTURAL SYSTEMS

ANICA PERKOVIĆ, GEORGETA RAŢĂ AND FLORIN SALA

Introduction

Sustainable agriculture has addressed, ever since the concept appeared, ecological, economic, social, and philosophical issues in its battle against the prevailing agricultural system, variously called "conventional farming", "modern agriculture", or "industrial farming" that, it is true, has delivered tremendous gains in productivity and efficiency, but also a series of **concerns**. If agriculture profoundly affects many ecological systems through the negative effects of current practices, if economic and social problems associated with agriculture cannot be separated from external economic and social pressures because of the barriers to a sustainable and equitable food supply system, if there are potential hazards tied to sub-therapeutic use of antibiotics in animal production, and pesticide and nitrate contamination of water and food in humans, if the challenge of defining and dealing with the problems associated with today's food production system is inherently laden with controversy and emotion, things do not get simpler with the blooming of new agricultural concepts and practices whose definitions are inevitably compromises among differing world views, sets of values, etc. One thing is sure: we can analyse the terms (words or phrases) defining them to make them easier to understand.

Material and Methods

We have inventoried 79 such concepts and practices (some of which are synonyms); we then selected only the words formed with **combining forms**. The terms thus selected were analysed from the point of view of their structure (**combining form** and **basic word**) to see if we can draw any conclusion at all about the trends in modern agricultural nomenclature.

Results and Discussion

Of the 79 *concepts and practices associated with sustainable agricultural systems*, 9 are designated by words formed with **combining forms** (11%), while the rest are **compounds** with 2, 3 or more elements (89%).

A **combining form** is, in grammar, 'a linguistic form that occurs only in combination with other forms' (WEUDEL) (the definition does not mention if it is placed before or after the basic word), or 'a bound form (or bound morpheme) used in conjunction with another linguistic element in the formation of a word' (Chalker & Weiner 1994).

In **word formation**, a **combining form** may conjoin with:

- an **independent word** (*mini-* + ***skirt***);
- another **combining form** (*photo-* + ***-graphy***), or
- an **affix** (*cephal-* + ***-ic***).

This distinguishes it from an **affix** (prefix or suffix) that can be added to either a free word or a **combining form** but not solely to another affix (WEUDEL), adjusting the sense of a base (e.g. *ex-*, *un-*) or changing the word-class of the base (e.g. *-ation*, *-ise*) (Chalker & Weiner 1994).

There are three types of **combining forms**:

- forms borrowed from Greek or Latin that are **derivatives** of independent nouns, adjectives, or verbs in those languages: these **combining forms**, used in the formation of learned coinages, often semantically parallel independent words in English (e.g. *cardio-* in relation to *heart*, *-phile* in relation to *lover*) and usually appear only in combination with other **combining forms** of Greek or Latin origin (*bibliophile* and not**bookophile*);
- forms of free-standing English words: such **combining forms** usually have only single, restricted senses of the free words, and may differ from the words phonetically (*-land*, *-man*, *-proof*, *-wide*, *-worthy*);
- forms extracted from existing free words and used as bound forms, typically maintaining the meaning of the free words, or some facet of them (*-aholic*, *-gate*, *heli-*, *mini-*, *-orama*, *para-*).

The newly-formed words in our corpus are as follows:

- ***agrobiodiversity*** [?1997] (< *agro-* < Gk *agrós* 'tilled land', 'a combining form meaning 'field', 'soil', 'crop production' used in the formation of compound words' + *bio-* 'a combining form meaning

'life' occurring in **loanwords** from Greek and used in the formation of compound words' + *diversity* 'the state or fact of being diverse') is defined as 'a fundamental feature of farming systems around the world' encompassing many types of biological resources tied to agriculture, such as: genetic resources (the essential living materials of plants and animals); edible plants and crops (including traditional varieties, cultivars, hybrids, and other genetic material developed breeders); livestock (small and large, lineal breeds or thoroughbreds) and freshwater fish; soil organisms vital to soil fertility, structure, quality, and soil health; naturally occurring insects, bacteria, and fungi that control insect pests and diseases of domesticated plants and animals; agroecosystem components and types (poly-cultural / monocultural, small / large scale, rain fed / irrigated, etc.) indispensable for nutrient cycling, stability, and productivity; 'wild' resources (species and elements) of natural habitats and landscapes that can provide services (e.g. pest control and ecosystem stability) to agriculture (Thrupp in Gold 1999);

- ***agroecology*** [?1987] (< *agro-* < Gk *agrós* 'tilled land', 'a combining form meaning 'field', 'soil', 'crop production' used in the formation of compound words' + ecology 'the branch of biology dealing with the relations and interactions between organisms and their environment, including other organisms') has a broad definition implying a number of features about society and production that go well beyond the limits of the agricultural field 'a more environmentally and socially sensitive approach to agriculture, one that focuses not only on production, but also on the ecological sustainability of the productive system', and a narrow one 'the study of purely ecological phenomena within the crop field, such as predator/prey relations, or crop / weed competition' (Hecht, in Gold 1999);
- ***bio-control*** [1920-1925] (< *bio-* 'a combining form meaning 'life' occurring in loanwords from Greek and used in the formation of compound words' + control 'prevention of the flourishing or spread of something undesirable') is defined by language dictionaries as 'the control of pests by interference with their ecological status, as by introducing a natural enemy or a pathogen into the environment' (WEUDEL) or as 'man's use of a specially chosen living organism (predator, parasite, or disease) to control a particular pest (weeds, plant pathogens, vertebrates and insects)' (Orr, in Gold 1999);
- ***biodiversity*** [?] (< *bio-* 'a combining form meaning 'life' occurring in loanwords from Greek and used in the formation of compound words' + *diversity* 'the state or fact of being diverse') is, at its simplest level,

'the sum total of all the plants, animals, fungi and micro-organisms in the world, or in a particular area; all of their individual variation; and all the interactions between them (Raven, in Gold 1999);

- ***biodynamics*** [?](< *bio-* 'a combining form meaning 'life' occurring in loanwords from Greek and used in the formation of compound words' + *dynamics* 'the branch of mechanics that deals with the motion and equilibrium of systems under the action of forces, usually from outside the system') is defined by language dictionaries as 'the branch of biology dealing with energy or the activity of living organisms' (WEUDEL) or as 'a biodynamic method in which certain herbal preparations that guide the decomposition processes in manures and compost are central' (1985-1986 Year End Report, in Gold 1999);
- ***biotechnology*** [1940-1945] (< *bio-* 'a combining form meaning 'life' occurring in loanwords from Greek and used in the formation of compound words' + *technology* 'the branch of knowledge that deals with the creation and use of technical means and their interrelation with life, society, and the environment, drawing upon such subjects as industrial art, engineering, applied science, and pure science') is defined by language dictionaries as 'the use of living organisms or other biological systems in the manufacture of drugs or other products or fro environmental management, as in waste recycling (micro-organisms to degrade oil slicks or organic waste, genetically engineered bacteria to produce human hormones, and monoclonal antibodies to identify antigens)' (WEUDEL). More recently, products such as plants engineered for herbicide tolerance or insect resistance, and bacteria engineered to produce drugs for livestock may point to reduced chemical use and other sustainable applications in agriculture (Shaping an Agriculture for the Twenty-First Century: Biotechnology, in Gold, 1999);
- ***mini-farming*** [1995] (< *mini-* 'a combining form obtained by shortening of miniature, minimal, or minimum, with the meanings of 'small or reduced size in comparison with others of its kind; limited ins cope, intensity, or duration' + *farming* 'the business of operating a farm') is defined as 'a production system (including double-dug, raised beds, intensive planting, composting, companion planting, and whole system synergy) that makes it possible for one person to grow all of his or her family's food using truly sustainable methods that maintain the fertility of the soil without relying on non-renewable resources like petrochemicals or imported organic matter' (Jeavons in Gold 1999).

Two other coinages have been formed with **combining forms** that have not yet acquired this status, but that behave as such:

- ***no-till(age)*** [1965-1970] (< *no* 'used before a noun to convey the opposite of the noun's meaning' + *tillage* 'the operation, practice, or art of tilling land') is defined by language dictionaries as 'the planting of crops by direct seeding without ploughing, using herbicides as necessary to control weeds' (WEUDEL) or as 'a specific type of conservation tillage (a broad range of soil tillage systems that leave residue cover on the soil surface, substantially reducing the effects of soil erosion from wind and water, minimising nutrient loss, decreased water storage capacity, crop damage, and decreased farmability, leaving the soil undisturbed from harvest to planting except for nutrient amendment, and accomplishing weed control primarily with herbicides, limited cultivation, and, in more sustainable systems, with cover crops') (Conservation Technology Information Centre, in Gold 1999);
- ***permaculture*** [late 1970s] (< *perm(a)-* 'permanent' + *culture* 'the art or practice of cultivating the soil; tillage') is defined as 'an alternative sustainable agriculture system emphasising the location of each element in a landscape, and the evolution of landscape over time, and aiming at producing an efficient, low-maintenance integration of plants, animals, people and structure, etc., applied at the scale of a home garden, all the way through to a large farm' (Quinney, Jeeves, and Mollison in Gold 1999).

The most productive **combining form** is *bio-* (4 occurrences), followed by *agro-* (2 occurrences) and *mini-* (1 occurrence). Thus, there are 2 **combining forms** borrowed from Greek (*bio-* and *agro-*) with 6 occurrences (67%), and 1 **combining form** extracted from an existing free word, *mini-* (1 occurrence). Though they have not yet acquired the status of **combining form**, *no-* (1 occurrence) and *perm(a)-* (1 occurrence) behave as such (22%). These **combining forms** have conjoined only with independent words – *control*, *culture*, *diversity* (2 occurrences), *dynamics*, *ecology*, *farming*, *technology*, and *tillage* – closely related to agricultural practices, and never with other **combining forms** or with affixes.

Conclusions

All these concepts and practices have very literal meanings that have been coloured by their historic use and practitioners' experiences. Such as they are, these terms designate concepts and practices that simply defy definition, but that have provided 'talking points' not only for agriculturists, but also for linguists. Most of the newly-formed words are, naturally, learned coinages (67%) that continue the long-lasting tradition of renewing scientific vocabulary "to supply new needs for technical vocabulary that arose partly from the revival of learning in western Europe in the fifteenth and sixteenth centuries known as the Renaissance, and partly from the industrial revolution of the eighteenth century and its scientific spin-offs" (Carstairs-McCarthy 2002). But the large share of words formed with **combining forms** extracted from existing **free words** or with developing **combining forms** (33%) shows that agricultural English can also appeal to unorthodox means of enriching its vocabulary in its seek for new words to designate new realities in agriculture, i.e. new agricultural concepts and practices associated with sustainable agricultural systems, proving, once again, "the versatility and vigour of English word-formation processes" (Carstairs-McCarthy 2002).

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THE VOCABULARY OF ECOLOGY

GEORGETA RAŢĂ

Material and Methods

Words can take a new form and have a new grammatical function through one of the following transformations: **abbreviation**, **affixation (prefixation, suffixation, and multiple affixation)**, **backformation**, **change of morphological accent**, **composition**, **conscious / deliberate coinage**, **contraction**, **conversion**, **corruption**, **deflection**, **derivation from proper or personal names**, **folk-etymology** (Leviţchi 1970). The focus here is on transformations of these types that considerably enriched *contemporary English*. Our analysis of the ***English of ecology*** has been made on a corpus of English words and phrases used in ecology. To do so, we have inventoried terms specific to the ***English of ecology*** in some of the most comprehensive encyclopaedias and dictionaries of the world, and in some basic works of ecology. We then have tried to see how these terms formed.

Results and Discussion

1. Affixation. An ***affix*** is, in grammar, 'a bound element, as a prefix or suffix, added to a base or stem to form a fresh stem or a word, as *-ed* added to *want* to form *wanted*, or *im-* added to *possible* to form *impossible*' (RHDEL).

1.1. Prefixation. A ***prefix*** is, in grammar, 'an affix placed before a base or another prefix, as *un-* in *unkind*, *un-* and *re-* in *unrewarding*' (RHDEL). Prefixes productive in the ***English of ecology*** are of different origins (Latin, Greek, Middle English), and form both nouns and adjectives. The only ***Noun-forming prefix*** is of Latin origin: ***trans-*** 'a prefix occurring in loan words from Latin (*transcend*, *transfix*); on this model used with the meaning 'across', 'beyond', 'through', 'changing thoroughly', 'transverse', in combination with elements of any origin: *transempirical*, *transvalue*': ***transpiration*** (1545-1555, *trans-* + L *spiration-*) '*Bot.* the passage of water through a plant from the roots

through the vascular system to the atmosphere' (RHDEL), and 'loss of water vapour from a plant to the outside atmosphere' (Smith & Smith 1998).

1.2. Suffixation. A ***suffix*** is, in grammar, 'an affix that follows the element to which it is added, as *-ly* in *kindly*' (RHDEL). Suffixes productive in the ***English of ecology*** are of different origins (English, French, Germanic, Greek, Latin, Middle English, and Romance) and form both nouns and adjectives.

1.2.1. ***Noun-Forming Suffixes*** are of Latin, English, French, Germanic, Greek, and Romance origins: ***-ance*** 'a [Romance] suffix used to form nouns either from adjectives in - *ant* or from verbs': *abund**ance*** (< ME < MF < L *abundantia*) 'an extremely plentiful or over sufficient quantity or supply; affluence, wealth' (RHDEL), 'an extremely plentiful or over sufficient quantity or supply' (Smith & Smith 1998), 'the number of individuals of a species in a given area' (WCD); ***-(a)tion*** 'a [Latin] combination of *-ate* and *-ion*, used to form nouns from stems in *-ate*; on this model, used independently to form nouns from stems of other origin': *adapt**ation*** (< ML *adaptation-*) '*Biol*. any alteration in the structure or function of an organism or any of its parts by which the organism becomes better fitted to survive in its environment; a form of structure modified to fit changed environment' (RHDEL), '*Biol*. any alteration in the structure or function of an organism or any of its parts that results from natural selection and by which the organism becomes better fitted to survive and multiply in its environment; a form of structure modified to fit a changed environment; the ability of a species to survive in a particular ecological niche, especially because of alterations of form or behaviour brought about through natural selection' (Smith & Smith 1998), and 'a genetically determined characteristic [behavioural, morphological, or physiological] that improves an organism's ability to survive and reproduce under prevailing environmental conditions' (WCD); *assimil**ation*** (< L *assimilation-*) '*Bot*. the total process of plant nutrition, including absorption of external foods and photosynthesis' (RHDEL), '*Bot*. The total process of plant nutrition, including photosynthesis and the absorption of raw materials' (Smith & Smith 1998), and 'transformation or incorporation of a substance by organisms; absorption and conversion of energy and nutrients into constituents of an organism' (WCD); *(biological / ecological* or *biodiversity / nature / species / wildlife) conserv**ation** (activity / biology / practice* or *of ecosystems / individuals / populations)*, *(environment / nature / wildlife) protec**tion***; ***-cy*** 'a [Latin] suffix used to form abstract nouns from adjectives with stems in *-t*, *-te*, *-tic*, and especially *-nt*, also forming nouns from other adjectives and from nouns':