<u>2004 AGRICOLA Guide to Subject Indexing</u>
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PREFACE

For the benefit of those who may be most familiar with the previous edition, here is a comparison between the December 1990 and February 2004 versions of the *AGRICOLA - Guide to Subject Indexing*.

SECTION ONE - Introduction
Changes include:
      1) updated and expanded description of the AGRICOLA database
      2) added section on the overall objectives of indexing and the purpose of these indexing guidelines

SECTION TWO - An overview of subject indexing
A completely new section including:
      1) Subject coverage and format guidelines for article/document selection
      2) A brief explanation of MARC format
      3) An outline of the indexing process (previously covered in BASIC PROCESSES IN SUBJECT INDEXING FOR AGRICOLA and EXPRESSING CONCEPTS NEEDED FOR RETRIEVAL IN TWO INDEXING LANGUAGES USED IN AGRICOLA: THE CLASSIFICATION SCHEME AND THE CONTROLLED VOCABULARY)
      4) A discussion of various tools and resources for indexing

SECTION THREE - Subject analysis
3.1 - <u>Locating concepts for indexing</u> corresponds to 1. IDENTIFYING CONCEPTS WHICH REPRESENT THE SUBJECT AND PURPOSE OF A DOCUMENT
3.2 - <u>Identifying concepts for indexing</u> is a new section based on the *Guide to indexing for AGRIS and CARIS*. It provides one example of a systematic approach to locating concepts.
3.3 - <u>Selecting concepts for indexing</u> corresponds to 2. DECIDING WHICH OF THESE CONCEPTS ARE IMPORTANT FOR RETRIEVAL OF THIS DOCUMENT BY A USER OF AGRICOLA. Discussions of implication, and treating equal concepts equally, negative results, and priorities (for example: the frequency and manner of treatment of a concept) are largely unchanged. Levels of specificity, concepts composed of more than one factor, and the number of concepts selected are addressed in SECTION FOUR. Item 3.2.11 of 3.2 CAB THESAURUS (MARC TAGS 650 - SUBJECT DESCRIPTORS - AND 651 GEOGRAPHIC DESCRIPTORS has also been included in this section.
The most significant changes include:
      1) Advice to indexers to consider as part of their identification of all significant concepts, one or more concepts to indicate why an article was selected for AGRICOLA and/or one or more concepts that indicate the role or context of organisms, products, substances, etc.
      2) Concepts should be selected that focus on conveying the subject(s) and/or objective(s) of the document. It is no longer necessary to represent specific, routine clinical or research measurements, <u>unless</u> they constitute a major focus of the document.
      3) An expanded discussion of selecting methodology concepts

SECTION FOUR - "Translation" of concepts into indexing languages
There is a new introductory section that explains the MARC tags specifically used in subject indexing. The general explanation of the hierarchical, equivalence and associative relationships of the thesaurus terms and the rules for their use of is fundamentally the same as 3.2 CAB THESAURUS (MARC TAGS 650 - SUBJECT DESCRIPTORS - AND 651 GEOGRAPHIC DESCRIPTORS).

Concerning <u>specificity</u>, this section includes the following:
      1) The requirement has been maintained to use the most specific thesaurus descriptor applicable.
      2) Narrower terms <u>and</u> their broader terms may be used when the concept is discussed at both the broader and narrower level. This was also the case in the previous *Guide*.
      3) In this new version, it is also specifically stated that the broader term of any assigned

descriptor may also be used, if in the judgement of the indexer, the article should be retrieved as part of a broader concept.
4) If more than three narrower terms of the same hierarchy are assigned at the same level, the indexer may choose to use their broader term to represent the concept.

Included in this section is a <u>major</u> revision of the use of:
1) Taxonomic names and common names
2) Descriptors for diseases and experimental animal models.

Guidance on the order of terms has changed since the previous *Guide*.   It   is no longer a requirement that the first descriptor represent the major thrust of the material being indexed and belong to a particular group of terms.   There are suggestions for the order and proximity of terms.

Words or phrases that are in the title that are not *NALT* descriptors or nondescriptors may now be added as identifiers.   This indexing practice was prohibited in the previous *Guide*. Also, it is no longer necessary to hunt a specific descriptor to "cover" a term added in the identifier field. It should be clear from the descriptors assigned in what context a term was added to the 653 field.

Except as noted above, the following policies remain generally consistent with the previous *Guide*:
1) Assignment of more than one descriptor may be required to represent a single concept
2) Restriction on the use of two or more descriptors when a single pre-coordinated descriptor exists
3) Assignment of geographical descriptors (<u>4.1.2 - MARC tag 651 geographical terms</u>) corresponds to sections 3.2.12 through 3.2.15 of 3.2 CAB THESAURUS (MARC TAGS 650 - SUBJECT DESCRIPTORS - AND 651 GEOGRAPHIC DESCRIPTORS)
4) <u>4.2 Assignment of MARC tag 653 identifiers </u>corresponds to 4. USING UNCONTROLLED VOCABULARY [IDENTIFIERS, MARC TAG 653] FOR CONCEPTS NOT REPRESENTED OR REPRESENTED INSUFFICIENTLY SPECIFICALLY IN THE CAB THESAURUS.)
4) <u>4.3 Assignment of AGRICOLA Subject Category Codes </u>corresponds to 3. EXPRESSING CONCEPTS NEEDED FOR RETRIEVAL IN THE TWO INDEXING LANGUAGES USED IN AGRICOLA: THE CLASSIFICATION SCHEME AND THE CONTROLLED VOCABULARY and 3.1 AGRICOLA SUBJECT CATEGORY CODES [MARC TAG 072])

SECTION   FIVE - Communicating with NAL Thesaurus staff and the **Bibliography** have been updated.

Section 1 - Introduction

1.1 - The objectives of indexing and indexing guidelines

The quality of an information system is dependent not only on content, but also on how well the system allows access to relevant information by users.   Indexing can greatly enhance the quality and accessibility of the information provided by databases by overcoming a variety of barriers to information retrieval, including:
1) lack of subject/topic information
2) ambiguities of natural language
3) variations in writing and/or editing quality
4) inconsistencies in terminology

The purpose of subject indexing for the AGRICOLA database is to improve both the quantity and the

relevance of information retrieved by its users.   To achieve this goal, AGRICOLA indexers identify and communicate the significant aspects of each document.   In addition, indexers indicate the relationship(s) of these concepts to the field of agriculture.

Indexing is a process which is, by nature, largely subjective and intuitive.   The quality of indexing can be enhanced by guidelines which promote accuracy and consistency in the database, thereby improving user satisfaction.   The *AGRICOLA Guide to Subject Indexing* provides these guidelines.

The *AGRICOLA Guide to Subject Indexing*   outlines the principles to which indexers for AGRICOLA adhere when subject indexing.   It supersedes all sections of the *AGRICOLA Guide to Subject Indexing* issued in December 1990 and National Agricultural Library Notes to Indexers, Numbers 7, 8, 9, 11, and 19.

The *AGRICOLA Guide to Subject Indexing* has two primary objectives:
1) Describe the requirements for a full level indexing record in the AGRICOLA database.
2) Describe how indexers can fulfill these requirements.

1.2 - The AGRICOLA database

AGRICOLA (AGRICultural OnLine Access) is a bibliographic database of over 4 million citations to the agricultural literature, created by the National Agricultural Library (NAL) and its cooperators.   Manual indexing began at NAL in 1942 and continued through 1969.   During this period, 2.4 million indexing records were produced for the *Bibliography of Agriculture*.   Creation of electronic indexing records for AGRICOLA began in 1970.   The database covers materials in all formats, including printed works from the 15th century.   The records describe publications encompassing all aspects of agriculture and its allied disciplines.   Indexed records comprise approximately 85 percent of the AGRICOLA database; the remaining 15 percent are cataloging records (monographs, audiovisual materials, computer software, etc.)

Over time, there have been notable changes in the production of the AGRICOLA database, several of which have affected indexing policies and procedures.   From 1970-1979 CAIN, machine-readable indexing began.   From 1970 through 1986 indexers also classified documents into a variety of subject/publisher specific AGRICOLA subfiles, including:

ADU - Adult Extension materials	FAO - UNESCO-FAO
AGC - Ag Econ Canada	FNC - Food and Nutrition
AGU - Ag Econ USA	OTHER FOREIGN - non US materials
BEE - Apiculture/sericulture	OTHER US - non USDA US publications
BRU - Brucellosis	OTHER USDA - non-US USDA publications
ENE - Energy in agriculture	USDA - USDA publications
ENV - Environmental impact statements	PAR - Parasitology
	4-H - 4-H publications
EXP STN - State Experiment Station	EXT - State Extension Service

Since 1970, indexers have also assigned subject category codes to indexing records as a method of grouping documents into broad agricultural subject areas.   They have evolved from a small set of two digit codes used from 1970 to 1971, to a more complex set of four digit codes used during the period from 1972 to 1979.   In 1980 the subject category codes were revised using an alphanumeric scheme (*AGRICOLA Subject Category Codes with Scope Notes*). NAL is currently evaluating a replacement for the *AGRICOLA Subject Category Codes* using descriptors from the *NAL Agricultural Thesaurus*

(http://agclass.nal.usda.gov/agt/intro.htm) to broadly classify indexed materials.

From 1972 to 1985 indexers were responsible for title enrichment in addition to creating descriptors.   Use of a controlled vocabulary for indexing began in 1985 with the introduction of the *CAB Thesaurus* 1983 edition.   Starting in 1985 author-written abstracts were added to bibliographic records from selected journals.   New editions of the *CAB Thesaurus* were adopted in 1990 and 1996.   In July 2003, indexers began using the *NAL Agricultural Thesaurus* AGRICOLA for indexing records.

Section Two - An overview of subject indexing

2.1 - Selection

Indexers are responsible for accurately selecting the individual documents they will index for the AGRICOLA database. Their decisions are based upon two factors:
1) format and, 2) subject.

2.1.1 Selection based on document format
The overwhelming majority of the documents NAL selects for indexing are journal articles. However, patents, letters and other publication formats may be indexed.

The "Indexing Nonselection Criteria" (Supplement A) lists document formats which generally should not be indexed.   These standards help maintain the consistency of the AGRICOLA database and serve the information needs of AGRICOLA users.

From time to time, a special request may be made to index items that would normally be omitted under these guidelines. These special requests are approved by the Indexing supervisor and should be discussed before indexing begins.

2.1.2 Selection based on subject
The NAL Journal Evaluation Panel (JEP) decides which journals, among the thousands received at NAL, will be indexed for the AGRICOLA database. *Journals Indexed in AGRICOLA* (http://www.nal.usda.gov/indexing/jia.html/) is a database of information pertaining to the journals indexed for the AGRICOLA database.   The JEP's decisions are largely guided by the *Collection and Development Policy of the National Agricultural Library* (http://www.nal.usda.gov/acq/cdpolicy.htm) which provides an in-depth discussion of NAL collection development activities.

The JEP also determines if a journal will be designated as a "cover-to-cover", or "selective" journal. Each article in a "selective" journal should be evaluated by the indexer to determine if it falls within the subject scope of the AGRICOLA database.   All of the articles in a "cover-to-cover" journal should be indexed, including items that are not within the subject scope of AGRICOLA.

The "Indexing Selection Scope and Coverage Guidelines" (Supplement B) is used by indexers to select articles for indexing based upon subject. They help maintain consistency between indexing activities and NAL's collection development policy.

These guidelines are designed for indexing selection purposes. The subject areas are classified somewhat differently and are described in more detail than the list provided in the NAL collection development policy.

Selection - Summary
1) NAL indexers select documents for indexing using:
      A) The "Indexing Nonselection Criteria" for document format.
      B) The "Indexing Selection Scope and Coverage Guidelines", Supplement B, for subject scope.
2) Exceptions to 1A) and 1B) are handled as described below.
3) Most of the articles selected for indexing will satisfy the established criteria for document format and subject scope. However:
      A) There may be circumstances that would result in the selection of an item that would normally be nonselected based on format.
      B) The scope guidelines may not adequately handle all subject areas.
Indexers are asked to use good judgment when selecting these documents, carefully considering the impact of their decision on the quality of AGRICOLA. Indexers should consult with other NAL indexers,

the AGRICOLA database, and/or the Indexing supervisor for assistance.
4) If an indexer feels the "Indexing Selection Scope and Coverage Guidelines", Supplement B and/or the "Indexing Nonselection Criteria" should be changed, it is their responsibility to bring this to the attention of their supervisor.

2.2 - MARC format

MARC is the acronym for MAchine-Readable Cataloging. It defines a data format which emerged from a Library of Congress led initiative begun thirty years ago. MARC became USMARC in the 1980s and MARC 21 in the late 1990s. The data in a MARC record is organized into fields, each identified by a three-character tag. This system provides the mechanism by which computers exchange, use and interpret bibliographic information. Its data elements make up the foundation of most library catalogs used today, including the AGRICOLA database. Additional information on MARC 21 may be found at: http://lcweb.loc.gov/marc/96principl.html#two.

Currently, NAL indexers are responsible for supplying <u>subject indexing</u> information for the following fields:
650 *NAL Thesaurus (NALT* descriptor(s) - Section 4.1.1
651 Geographical descriptor(s) - Section 4.1.2
653 Identifier(s) - Section 4.2
072 Category Codes - Section 4.3

Only <u>subject indexing</u> will be discussed in this document, however, to facilitate workflow, indexers may be responsible for supplying data for other MARC fields such as **500** Notes.

2.3 - An outline of the indexing process

The basic processes in subject indexing for AGRICOLA are:

<u>Subject analysis:</u>
     1) Locating and identifying concepts which represent the subject and purpose of a document. (Sections 3.1 and 3.2.)
     2) Deciding which of these concepts are important for retrieval of this document by a user of AGRICOLA. (Section 3.3)

<u>"Translation" of concepts into indexing languages:</u>
     1) Expressing concepts needed for retrieval in the indexing "languages" used by NAL for AGRICOLA:
          a) The controlled vocabulary (*NALT*) for descriptors (MARC tag 650) and geographical terms (MARC tag 651) (Section 4.1)
          b) Subject Category Codes (MARC tag 072) (Section 4.3)
     2) Using uncontrolled vocabulary/identifiers (MARC tag 653) for concepts not represented or represented insufficiently in the *NALT*. (Section 4.2)

AUTHORS **create documents** using **uncontrolled vocabulary (natural language)** to describe the **concepts (ideas)** they want to convey.

INDEXERS: **analyze** the key **concepts** in **documents**
and
translate (express) the key **concepts** in **documents** using primarily, **indexing languages** and occasional **uncontrolled vocabulary** as needed.

AGRICOLA DATABASE: **displays** a bibliographic record of each **document**, using **indexing languages** and **uncontrolled vocabulary**, to describe the authors' **concepts** to database users.

AGRICOLA DATABASE SEARCHERS: **retrieve** bibliographic **documents** that match the **concepts** they are looking for by using **indexing languages** and **uncontrolled vocabulary** to query the database.

2.4 - Tools and resources for indexing

2.4.1 - The *NAL Thesaurus (NALT)*
In agricultural literature, a **concept** (Section 3.2, Analytical procedure) may be:
- organisms
- products
- phenomena
- activities
- operations
- particular objectives or perspectives
- equipment
- processes
- techniques
- geographical factors
- environmental conditions
- an element that affects any of the above

Authors may use a variety of words and/or phrases to describe the same concept.
A simple example is the phrase "United States".   This environment/location concept may be also expressed by authors as: the United States of America, U.S.,U.S.A., US, USA, America, etc.

Without indexing, the diversity of language creates a problem for people seeking to obtain information on a single concept.   Database searchers are faced with trying to determine all the possible ways a concept

may be expressed.   This process can be further complicated by search engines that are unable to recognize the significance of capitalization, punctuation, word order, etc.   In the example above, a search query using all seven ways of expressing the concept "United States" could also return every occurrence of "South America", "Central America", and "Latin America" in the database.   Because of the abbreviations, it would also be possible to retrieve results on documents about the Uniform System (of lens aperture), University of Saskatchewan, United States Army along with every document containing the word "us".

Suppose the author never uses any of the phrases for "United States" however, it is clear that this geographical location is an important concept.   For example: An article discusses forest management practices in national forests, naming Tongass, Chattahoochee, White Mountain, Gila and several other U.S. National Forests as specific examples.   Would someone looking for "forest management in the United States" be interested in this article?   Probably yes, but how would they find it?

When indexers recognize a concept, however it may be expressed by the author, they use controlled vocabulary term(s) designated to represent that concept.   Therefore, a controlled vocabulary for indexing provides a single common language for communicating document content.   It increases the level of consistency in indexing and improves the precision of retrieval.

2.4.1 - *NAL Agricultural Thesaurus*
The *NAL Agricultural Thesaurus* is the controlled vocabulary used for indexing records at NAL.   Only the descriptors (terms) found in the *NALT* may be used by indexers for MARC tags 650 and 651.   The Introduction to the **NALT** (http://agclass.nal.usda.gov/agt/intro.htm) offers a very thorough discussion of its history and structure. It includes explanations of the relationships between terms, notes and other thesaurus features. For proper and effective use of the *NALT*, it is critical that indexers read and completely understand this material.

2.4.2 - *AGRICOLA Subject Category Codes with Scope Notes*
In the AGRICOLA Subject Category Code scheme, the field of agriculture is divided into 21 broad subject areas.   Many of these areas is further subdivided, but even the subdivisions are very broad. This system helps AGRICOLA   users easy access to documents in large, general subject areas.

The scope of each code is described by fairly lengthy notes, perhaps 100 words or more.   Included among these Scope Notes may be cross-references indicating other codes which might be appropriate instead of, or in addition to the code at hand.

The two indexing languages: the AGRICOLA Subject Category Codes and the *NALT* controlled vocabulary, are independent of one another in the sense that each is a distinct system used to represent the subject content of a document.   Although there may appear to be relationships between the codes and the descriptors, they should be used separately, not in combination, to represent a document.

2.4.3 - Additional resources for indexers
When indexers need additional assistance understanding concepts for the purpose of applying the *NALT*, there are a number of accessible resources available for assistance.   Indexers must use their good judgment to evaluate the quality of the information found in these and other resources.

> The AGRICOLA database
> Onelook dictionaries (www.onelook.com)
> Google.com, Alltheweb.com and other search engines
> GRIN taxonomy [database online]. Beltsville, MD: Germplasm Resources Information Network,
>   2001.http://www.ars-grin.gov/npgs/tax/index.html
> ITIS data access [database online]. Integrated Taxonomic Information System,
> 2001.http://www.itis.usda.gov/itis_query.html
> PLANTS Database, Version 3.1 [database online]. Baton Rouge, LA: National Plant Data Center,

2001.http://plants.usda.gov

Medical subject headings (MeSH). [database online] Bethesda, Md.: National Library of Medicine, 2001. (http://www.nlm.nih.gov/mesh/MBrowser.html)

ExPASY Enzyme Nomenclature database. http://www.expasy.ch/enzyme/

The "Sources and Selection of Descriptors" section in the Introduction to the *NAL Agricultural Thesaurus* (http://agclass/nal.usda.gov/agt/agt.htm) offers an extensive list of additional resources for information.

Tools and resources for indexing - Summary

1) NAL indexers are responsible for understanding how to fully and accurately utilize the following indexing resources:

A) *NAL Thesaurus* (NALT)

B) *AGRICOLA Codes* *Subject Category*

2) If an indexer feels documents listed in either of the changed, it is their 1) above should be this to the attention responsibility to bring of their supervisor.

INDEXERS analyze the key **concepts** in **documents**.

Section Three - Subject Analysis

This section describes the three steps of subject analysis:
1) location of concepts within a document
2) identification of concepts to look for in a document
3) selection of concepts to index

3.1 - Locating concepts for indexing

To begin the subject analysis process, indexers must evaluate each document and locate the concepts that represent its subject(s) and purpose(s).   Occasionally, a small amount of research may be required to understand one or more of the topics addressed in a document.   Consult the list of indexing research resources in Section 2.4.3 for assistance.

Use the following guidelines for every document to be indexed.   You will miss important concepts if you use an abbreviated or scattershot approach.

A) Understand the Title.

B) Read the Introduction to the document for background information and to locate the author's statement as to the purpose of the document. This statement of purpose is often the last sentence of the introduction. Compare the statement of purpose with the title of the document to see that they correlate.

C) Read the Abstract as an aid for focusing your examination of the text. (Indexers may want to

reexamine the abstract at a later stage in your indexing to verify that items in the abstract are actually substantively discussed within the text.)

D) Scan the <u>Materials and Methods</u> section for specific names of organisms, geographical locations, procedures, etc. Information in the <u>Materials and Methods</u> section is often more specific than elsewhere in the document.

E) Note <u>Illustrations</u>, <u>Charts</u>, <u>Graphs</u>, and <u>Tables</u> and their legends or captions. Also note headings, phrases, or words in boldface or other special typefaces.

F) Scan the <u>Results</u>. Don't overlook significant negative results.

G) Read the <u>Conclusions</u> and/or <u>Summary</u> and note actual findings, as differentiated from speculations or implications. It can be helpful to compare the findings to the statement of purpose in the Introduction to see to what extent the purpose was realized.

H) Scan the <u>Bibliographic References</u> for hints and confirmation if, at this point, you are still having problems understanding the document or if you are looking for some
 specific item of information (e.g., the meaning of an acronym).

I) Scan any supplied <u>Keywords</u> And/or <u>Running Titles</u> to see that you have considered all concepts indicated there. However, use these with care; they are not always well chosen. Don't allow them to overrule your own good judgment.

J) As a final aid in determining slant, consider the following:
 a) the type of journal in which the document appears,
 b) the organization with which the author is affiliated, and
 c) the funding source for the research.

.2 - Identifying concepts for indexing

The following is adapted from: *Guide to indexing for AGRIS and CARIS*, by Monique Bonnichon.   It is one example of an aid that can help indexers conduct a thorough analysis of a document.   <u>Not every document will have each type of concept, nor will every identified concept be selected for indexing</u> (Section 3.3).

Please note that the examples are given in the form of titles however, indexers will need to **view the entire document** (Section 3.1) to perform a satisfactory subject analysis.

3.2.1 - Analytical procedure

The principle underlying the analysis of content is identification of <u>concepts</u> rather than <u>words</u>.   The concepts represent the knowledge conveyed by the document.

In order to analyze a document completely and precisely, it is advisable to identify its various concepts based on their <u>function</u> in the logical structure of the document:

- object

- action

- point of view

- agent

- means

- location,/environment

- other results

In practice, this examination becomes a series of questions the indexer asks about the document, until all possibilities of interrogation are exhausted. The entire document must be examined during the analysis process.

Except for the object, none of the functions must be included in the document. The subject does not have to include an action, an agent or the employment of the means, etc.

Identifying the function of a concept will sometimes seem arbitrary or difficult.　However, it's not necessary to distinguish an action from a process, or a point of view from an environment.　An error in the choice of function has no effect on the quality of the analysis.　What is important is to identify <u>all</u> the concepts.

OBJECT or CENTRAL SUBJECT

It is necessary first of all to determine the things or phenomena, i.e., the **object(s)** on which the ideas or knowledge of the document are centered.　Every document has an **object**. The **object** of a document may relate to one or more of the following groups of concepts:

1) those corresponding to the concrete entities that are produced, used or processed in the course of the various agricultural activities, e.g., plants, animals, agricultural products or foods, fertilizers, pesticides, fuels, equipment, materials, food additives, drugs for animals, etc.

2) those corresponding to abstract entities: phenomena, conditions and/or activities affecting or involved in agriculture, e.g., an agricultural activity; a method, operation or process used in agricultural activities; a situation; economic, social, legal, environment or climatic conditions; a disease; etc.

These document titles are given as examples:

– A description of **lychee cultivars**.

– Observations of **automatic teat cup attachment** in an automatic milking system.

– Work performance of the **camel** as a draught and riding animal.

– Sizing **horizontal silos** for safety and strength.

– The **cleaning process**: some definitions of terms.

– The **international commission on microbiological specifications for foods** (ICMSF).

– **Food security**: an ODA view.

– **Agriculture** in Britain

– **University education** in agroforestry.

– **Remote sensing applications** to human and animal health.

One must then make sure that these concepts have been completely identified by checking whether the object relates to:

        all or part (components or elements) of these concepts (Section 4.1.1.c, Item I)

        particular characteristics or attributes of these concepts or their components

– **Work performance** of the **camel** as a draught and riding animal.

– Infection of **aerial parts** of **potato plants** by Colletotrichum coccodes and its effects on **premature vine death** and **yield**.

– Comparison of the **immunotoxicity** of **propanil** and its **metabolite, 3,4-dichloraniline**, in C57B1/6 mice.

– Comparative **physicochemical and functional properties** of **cassava starches** obtained by conventional, and enzyme integrated conventional techniques.

– Comparative study on **fat globule membrane** of **buffalo, cow, goat** and **sheep raw milk**

– Leguminous browse supplementation effect on the **agronomic value** of **sheep and goat manure**.

– Effects of urea fertigation of apple trees on **soil pH, exchangeable cation** and **extractable manganese** in **sandy loam soil** in New Zealand.

– **Cooking quality and nutritional attributes** of some **newly developed cultivars** of **chickpea (Cicer arietinum)**.

ACTION

The object may be partially or totally subject to or affected by an **action** (activity, operation, phenomenon, etc.)

– **Filtration** of soy sauce by ceramic membrane.

– Effects of **urea fertigation** of apple trees on soil pH, exchangeable cation and extractable manganese in

sandy loam soil in New Zealand.

– Inhibition of degreening in the peel of bananas **ripened** at tropical temperatures.

– Sperm precedence in Helicoverpa zea (Lepidoptera: Notuidae): response to substerilizing dose of **radiation**.

If a concept or concepts are recognized as corresponding to **actions**, it is then essential to make sure that they have been completely identified by checking whether the action is considered:

> in its entirety or in its parts (components or elements)
> in relation to specific parameters or conditions.

– Inhibition of degreening in the peel of bananas **ripened** at **tropical temperatures**.

– Sperm precedence in Helicoverpa zea (Lepidoptera: Notuidae): response to **substerilizing dose** of **radiation**.

POINT OF VIEW

It is essential to ascertain whether the object of the document is considered from a particular **viewpoint**, in relation to a particular objective or a particular context.

– Work performance of the camel as a **draught** and **riding animal**.

– Sizing horizontal silos for **safety** and **strength**.

– **Food security**: an ODA view.

– **Systematic** and **palynological study** of the genus Whitfieldia (Acanthaceae - Whitfieldieae) in Central Africa

– Animal surgery: **veterinary-ethical considerations**.

AGENT

An **agent** or **agents** can affect the object or intervene during an action. It must also be ascertained whether the document is concerned with components or elements of these **agents** or with certain of their characteristics.

– Infection of aerial parts of potato plants by **Colletotrichum coccodes** and its effects on premature vine death and yield.

— Deacidification by distillation using **nitrogen** as stripper. Possible application to the refining of edible fats.

— Collective human food poisoning by **chlenbuterol residues** in veal liver.

— Cation exchange capacity, induced in calcareous soils by fertilization with **manure**.

MEANS

Special **means** may be used to study the object or perform actions:

- materials, machines or equipment

- processes, methods, or techniques

Just as in the preceding groups, it must be ascertained whether particular aspects (elements, components or characteristics) of these means are considered.   In addition, careful consideration must be given to **means** during the selection of concepts for indexing according to the guidelines for **Methodology**.

— Filtration of soy sauce by **ceramic membrane**.

— Nursery rearing of Penaeus monodon (Fabricius) using **suspended (hapa) net enclosures** installed in a pond.

— Rapid Salmonella detection by a combination of the **conductance** and **immunological techniques**.

— Determination of chemical constituents in processed [Japanese] green tea **near infrared analysis**.

— Evaluation of bull semen fertility by **homologous in vitro fertilization tests**.

— Portable-chain saws, Automatic chain break and cutting equipment. **Operator's safety test**.

— A systematic study of Machaeranthera (Asteraceae) and related groups using **restriction site analysis of chloroplast DNA**.

ENVIRONMENT/LOCATION

It must be ascertained whether the object, action, agent or means are considered as part of a particular location and/or environment, and whether factors or conditions in this environment or location are studied in a specific way.   In addition, careful consideration must be given to **environment/location** during the selection of concepts for indexing according to the guidelines for **geographical terms**.

— Effects of urea fertigation of apple trees on soil pH, exchangeable cation and extractable manganese in sandy loam soil in **New Zealand**.

— Nitrogen mineralization after leys ploughed in **early or late autumn**.

— Agriculture in **Britain**.

– Brewed in the Pacific Northwest: a history of beer-making in **Oregon** and **Washington**.

Concepts relating to the environment and location are especially important for agricultural databases.   It must be borne in mind that a spatial location may also imply particular physical, socioeconomic or cultural conditions that must be identified in the analysis:

– Level of penetration of artificial insemination in some rural areas in the **Assiul Governorate (Egypt)**. The study relates to the attitude of the peasants of the Assiul Governorate with regard to the acceptance of this new technique, so particular sociocultural conditions are also involved.
– Drought-resistant trees and shrubs for dry plantations in **Bahrain**.   Here Bahrain also has the meaning of climatic zone.

OTHER RESULTS
It is also essential to check whether results other than those noted in the preceding evaluation have been obtained.

3.3   Selecting concepts for indexing

All of the concepts deemed necessary to adequately represent the document's significant aspects should be selected for indexing (exhaustivity.)   These concepts should be represented at the level of detail consistent with the treatment of the subject in the document (specificity.)

It is vitally important to keep in mind that indexers must select concepts not words.   Always remember that the same concept can be expressed by authors using many different words or combinations of words. (See Section 2.4.1 - *The NAL Thesaurus*...)

3.3.1 - General considerations
A) Give high priority to concepts the author considers important as evidenced by the manner and frequency of their treatment in the document.   Choose concepts which are substantively discussed, not just mentioned in passing.

Consider the treatment of the subject in the document:
       Data: substantial, cursory, detailed, and/or summary
       Discussion: specific, general discussion, lengthy, and/or brief
       Review: extensive or cursory

B) Also index concepts that are important, based on experience and judgment, even if they are not specifically stated by the author. To identify these concepts, it may be helpful to determine why a document was selected for the AGRICOLA database.   "The Indexing Scope and Selection Guidelines" can assist with selecting these concepts.   (See the Example in Item G below.)

Another way to achieve this, is by determining the role or context of organisms, products, etc.
Example:
       A document discussing pathogenicity of a parasite for a pest insect should be indexed with the concept "biological control agents" even if the author does not use this term.

Examples of context or roles include:
– Plants: "crops", "dye plants", "host plants", "pasture plants", "weeds"
– Animals: "food animals", "game animals", "working animals", "pets"
– Insects: "pollinating insects", "insect pests", "aquatic insects", "storage insects"
– Foods: "chilled foods", "dietetic foods", "infant foods", "snack foods", "staple foods"
– Health: "animal health", "human health", "plant health"
– Equipment: "cleaning equipment", "heating equipment", "application equipment"
(Section 4.1.1.d provides additional information for locating these terms in the *NALT*.)

This level of analysis, based upon indexers' education, training and experience, provides important and extremely valuable information to AGRICOLA users as to the "agricultural significance" of documents.   It is not, however, the responsibility for NAL indexers to attempt to determine every possible agricultural use or application for the information they are analyzing. *Role/context concepts must apply to the research, discussion and/or circumstances of the document in hand.* (See Item G below.)
Example:
       A rabbit may be a pest, a pet, a source of food, a source of fur, etc. However, in a discussion of electrified fencing to deter rabbits from eating crops, "rabbits" would only be "vertebrate pests."

       In an article on "Evolution of plasma parameters in rabbit does in relation to their physiological condition and with restriction of the quantity of feed provided," an indexer would be in error to assign any of the roles sited in the previous example. The concepts of "animal nutrition" and "animal physiology" however are applicable.

C) Select only information which warrants the time and (possible) expense of retrieval.   Consider whether or not the inclusion of a concept will satisfy or mislead an AGRICOLA user.   Place yourself in the position of a reference librarian or end user searching the AGRICOLA database and ask: Would you want to retrieve this document when searching this topic? (See Item F below.)

D) Select significant negative results.
Example:
> In a study of the effect of iron deficiency on peroxidase isoforms in sunflowers, the author(s) found "...while ascorbate peroxidase activity significantly decreased, <u>no change was observed </u>in either soluble guaiacol or syringaldazine-dependent unspecific (POD) peroxidases activity following iron starvation.

The finding that there was no change in these two enzymes is a significant result and these concepts should be indexed.

E) Treat equally concepts which are treated equally in the document.
Example:
> In a project listing four different dinitroaniline herbicides, represent each of them or use a concept that represents the group, such as "dinitroaniline herbicides".   Do not select only one or two of the four.

F) It is important for NAL indexers to focus on choosing concepts that convey the subject(s) or objective(s) of selected documents.   It is not necessary to index the specific, routine measurements of these subjects or objectives.
Example:
> If a study examines the impact of a specific feed supplement on hog growth rate and lean meat, the concepts selected for indexing must include: "feed supplements", "animal nutrition", "swine", "growth",   "pork".   It is not necessary, to represent the specific measurements of growth which may include: "weight gain", "length", "feed conversion", etc.

These specific measurements must be indexed, however, when the techniques of their measurement, i.e., methodology is, a major focus of the document. (See Section 3.3.2 -   <u>Methodology and techniques</u> below)

G) Do not select concepts which are present only through implication or speculation.   Documents usually contain references in the text to related work.   In particular, the Introduction may contain a brief literature review as a background or rationale.   The Summary or Discussion may refer to the work of others, possible applications of the current research or plans for additional investigations.   Do not be misled into indexing concepts that represent work not conducted as part of the research described <u>in the document at hand</u>.
Examples:
> Indexing for an article discussing a clinical trial on the effect of folic acid supplementation during pregnancy on the incidence of neural tube defects, should include "maternal nutrition," even if it is not mentioned specifically by the author(s).
>
> However, for an article on the folic acid content of breakfast cereals, the concept of "maternal nutrition" would not be selected although it might be discussed extensively in the Introduction and/or Discussion.   This would be implication. The concepts selected for this article would include "food composition," "vitamin content" and "nutrient content".

H) Situations in which geographical concepts should be considered include, but are not limited to the following
 - there is a geographical term in the title

- there is a map in the article
- a survey has been carried out
- field research has been carried out
- flora or fauna of a region has been studied
- new taxa or other taxonomic information are a topic, i.e., geographical distribution
- organizations or institutions are a significant topic
- the article is biographical in slant
- legislation, patents

Consider the suitability of geographical concepts when any of the following are subjects of a document:
- ecology, including pollution
- economics
- education/training
- epidemiology
- history
- human ecology
- land and/or water resources
- legislation, jurisprudence, or politics
- meteorology/climatology
- sociology

3.3.2 - Methodology and techniques
<u>When the methodology or technique concepts **should** be selected for indexing</u>

I) If a methodology concept is a primary focus of the research project, index it.   This includes:
– New methodology
– Focus of the research is analytical methods
– Research includes improving on a known methodology
– New use of a known methodology
– Evaluation of known methodology, i.e., evaluation of a known methodology for accuracy or reliability
– Comparison of two or more methods

J) Consider indexing methodology if: 1) it provides a unique or characteristic mechanism for studying or evaluating the primary topic, or 2) helps to describe the nature of the results.

Examples:
> If a document is about the isolation, purification or fractionation of a mixture of compounds, "high performance liquid chromatography" might describe more precisely what kind of "isolation" is involved.

> An article about determining of the structure of a chemical compound by nuclear magnetic resonance spectroscopy needs <u>both</u> "chemical structure" and the technique as indexed concepts because a user trying to determine the structure of a new compound by nuclear magnetic resonance would want to compare the spectral data of the new compound to the one in the article.

> An article showing determination of the ultrastructure of a biochemical compound by X-ray diffraction gives different data than one using scanning electron microscopy.   Users might need to know the technique used to determine the ultrastructure.

> An article about the effect of nutrient intake on some biochemical parameter or disease condition is best described by adding the method of data collection, e.g., epidemiological survey, dietary

survey or clinical trial.   While the article does not <u>focus</u> on the survey technique, including these concepts may help to describe what the article is about and effects the interpretation of the results.

<u>When the methodology or technique concepts **should not** be selected for indexing</u>
K)   Do not index the methodology or technique routinely.   There needs to be a specific reason that the methodology or technique is included in the description of a document.   Before using a technique descriptor, consider whether or not a user would benefit from being able to retrieve that article using that descriptor.   If every article using "polymerase chain reaction" is assigned the descriptor, there is no distinction between articles based on human judgment of "aboutness".

L) Some research articles give the details of the stepwise procedure of the overall analysis, such as, collection of leaves, drying of leaves, milling of leaves, acid digestion of leaves, etc.   Do not index the individual stepwise procedures.

Subject analysis is, in many respects, the most demanding aspect of subject indexing.   If a concept is missed or is misunderstood, the value of a document to the database is diminished; that information is lost.   Thorough, accurate and consistent selection of concepts is the key for improving AGRICOLA users' access to relevant information.
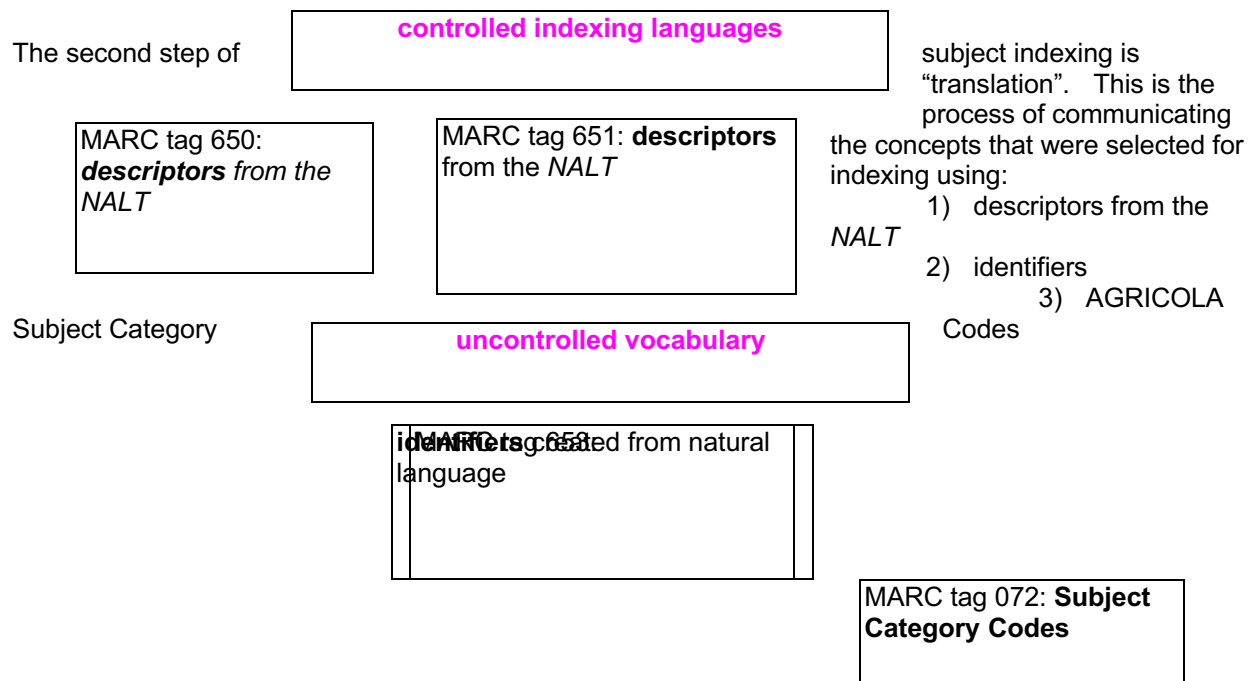

Subject analysis - Summary
1) <u>All</u> of the concepts necessary to adequately represent the document's significant aspects should be selected for indexing. (exhaustivity)
2) Selected concepts should be represented at the level of detail consistent with the treatment of the subject in the document. (specificity)
3) NAL indexers will index significant negative results
4) The concept(s) that represent the AGRICOLA selection criteria of the document will be selected.
5) Equal concepts will be treated equally.
6) Concepts that were not studied in the document at hand will not be included.
7) Methodology concepts will be selected in accordance with the following specific items from the Section 3.3.2 -   <u>Methodology and Techniques</u>:
   A) Methodology <u>should</u> be indexed, if a methodology concept is a primary focus of the research project
   B) Routine techniques or individual stepwise procedures should not be indexed.
8) NAL Indexers will focus on the concepts that convey the subject(s) or objective(s) of selected documents, rather than the specific measurements of those concepts as described in Item F, Section 3.3.1

Section | **INDEXERS** translate (express) the key **concepts** in **documents** using primarily **indexing languages** and some **uncontrolled vocabulary** as needed. | **Four -**

"Translation" of concepts into indexing languages

The second step of

controlled indexing languages

subject indexing is "translation". This is the process of communicating the concepts that were selected for indexing using:

1) descriptors from the *NALT*

2) identifiers

3) AGRICOLA Codes

MARC tag 650: *descriptors* from the *NALT*

MARC tag 651: **descriptors** from the *NALT*

Subject Category

uncontrolled vocabulary

identifiers created from natural language

MARC tag 653

MARC tag 072: **Subject Category Codes**

As described earlier, the information in AGRICOLA bibliographic records is organized using the MARC format:

1) MARC tag 650 descriptors (*NALT*): express the subject concepts in a document that have been identified for indexing.

2) MARC tag 651 descriptors (*NALT*): describe geographical locations

3) MARC tag 072 codes (*AGRICOLA Subject Category Codes*): used to classify each document into one or more broad areas of agriculture.

4) MARC tag 653: as the need arises, indexers can use natural language to further describe concepts. These terms are called "identifiers" or "nondescriptors."

The following sections include rules and guidelines to assist NAL indexers effectively use these "language" tools.

4.1 - Assignment of *NALT* terms

4.1.1 - MARC tag 650 descriptors

4.1.1.a - Word blocks - descriptor relationships and general information

Accurate and consistent application of controlled vocabulary terms strengthens precision (relevance of the information retrieved). To preserve the value of subject indexing to AGRICOLA, it is critical for indexers to examine each word block carefully and assign descriptors by the rules and guidelines

described in this section.

Each descriptor (word or phrase) in the *NALT* has a word block, which graphically displays its:

1) hierarchical relationships: Broader terms (**BT**)
                                   Narrower terms (**NT**)
The hierarchies in the thesaurus may contain up to seven levels of increasing broader (BT1, BT2, BT3, etc.) or increasingly narrower (NT1, NT2, NT3, etc.) descriptors.

2) equivalence relationships: Use/Used for (**USE/UF**, noted with an "*")
                                   Use AND/Used for AND (**USA,** noted with an "*")

3) associative relationships: Related terms (**RT**)

4) Scope notes (**SN**)

Word block examples:
agroforestry
Used for:
agri-silvicultural systems *
agrisilvicultural systems *
agro-silvicultural systems *
agrosilvicultural systems *
Broader Terms:
farming systems
forestry
Narrower Terms:
alley cropping
silvopastoral systems
Related Terms:
plant strata
sustainable agriculture

virus curing
Definition:
Causing the loss of a dormant virus which has inserted itself into a bacterial genome (a lysogenized virus)
Used for:
curing, viruses *
Broader Terms:
genetic techniques and protocols

amino acid substitution
Scope Note:
Use for substitution of one amino acid for another; for amino acid substitution as experimentally induced by man USE amino acid substitution AND protein engineering.

Definition:

> The replacement of one or more amino acids in a protein with another. If a functionally equivalent amino acid is substituted, the protein may retain wild-type activity. Substitution may also diminish or eliminate protein function.

Broader Terms:

> mutation

Related Terms:

> missense mutation
>
> protein engineering
>
> protein structure
>
> structure-activity relationships

egg clutches

Scope Note:

> Use for birds; For insects and other arthropods USE egg masses

Broader Terms:

> oviposition

Related Terms:

> clutch size

The organization of the *NALT* is completely explained in the Introduction to the web version (http://agclass.nal.usda.gov/agt/intro.htm).   Indexers <u>must</u> understand how to use word blocks to effectively and correctly assign descriptors.

A) Indexers must use only *NALT* descriptors in field 650.   Indexers may not create their own terms to enter in this field.

B) <u>Nondescriptors</u>, indicated by the USE, UF and USA designations cannot not be used by indexers as descriptors or identifiers (Section 4.2.2 , Item F).   <u>*NALT* descriptors</u> cannot be used as identifiers (Section 4.2.2 , Item E).   Furthermore, "Use" instructions, definitions and scope notes are <u>not</u> optional and must be followed.

Examples:

> *DNA fingerprints* *
>
> **Use:**
>
> > **DNA profiling**
>
> The phrase "DNA fingerprints" may not be used as a descriptor or an identifier.   "DNA profiling" must be used.

> **postemergence herbicides** *
>
> **Use AND type:**
>
> > **herbicides**
> >
> > **postemergent weed control**
>
> The phrase "postemergence herbicides" may not be used as a descriptor or an identifier. Indexers who want to convey this concept must assign the descriptors "herbicides" <u>and</u> "postemergent weed control".

C) Do not use a descriptor from the *NALT* unless the broader terms (BT) are consistent with the meaning needed for the article you are indexing. If an indexer does not follow this instruction, she or he runs the risk of seriously misleading an AGRICOLA user and negating the value of using a controlled vocabulary. Example:

compliance
Broader Terms:
 human behavior
Related Terms:
 dropouts
 laws and regulations
"compliance" may not be used to describe animal behavior because its Broader Term is "human behavior".

This instruction applies even if some of the related terms (RT) <u>do</u> have meanings consistent with the meaning for the article you are indexing.

Similarly, an indexer should not feel prohibited from using a descriptor based solely upon its related terms.   Related terms are provided in word blocks to suggest to thesaurus users concepts that might be of additional interest but are not considered part of the BT/NT (hierarchical) term relationship.

D) In the case of polyhierarchies, where one descriptor has more than one BT, the descriptor can be used in the sense of any of its broader terms.
Examples:

oilseed protein
Broader Terms:
 oilseed products
 protein products
Narrower Terms:
 coconut protein
 cottonseed protein
 rapeseed protein
 sunflower seed protein
Related Terms:
 oilseeds
This descriptor may be assigned in the context of an "oilseed product" OR "protein product"

irrigation
Scope Note:
 Application of water to soil for the purpose of plant production
Used for:
 *herbigation ***
 *watering ***
Broader Terms:
 irrigation and drainage
 soil management
Narrower Terms:
 irrigation canals

irrigation management
irrigation systems
irrigation water
Related Terms:
chemigation
fertigation
irrigated conditions
irrigated farming
"irrigation" may be assigned as a more specific concept of "irrigation and drainage" or "soil management".

E) Examine the complete word block of a descriptor before assigning it to a document.   Never assign a descriptor on the basis of a USE or USA reference without consulting their hierarchies:
1) You may discover that the descriptor to which you are being referred has the wrong hierarchical context for the document at hand.
2) You may discover that an NT of the descriptor to which you are being referred is more appropriate and/or specific.

4.1.1.b - Specificity

F) For each concept, indexers will assign the most specific descriptor(s) in the *NALT*.   The level of specificity will reflect the level of specificity used by the author(s).
Example:
In a discussion of   "...clear-cutting in the boreal forest of Alaska..." The most specific descriptor, "clearcutting" must be used versus the broader term "felling".

G) Indexers may also use the Broader Term of any assigned descriptors, if, in their opinion, this article should be retrieved as part of a broader concept.   This may be true, for example, if the author uses one or more objects to represent a larger group.
Example:
In a study of analgesics and appetite in animals, the authors use acetaminophen and aspirin in the study.   The descriptor "analgesics" may also be applied along with "acetaminophen" and "aspirin" because they were used to represent the larger concept of "analgesics".

The broader term of any descriptor may also be used if the document addresses a concept at both the broader and narrower levels.
Example:
In a special issue on Soil Moisture Theories, the author might address a variety of specific issues ("soil structure", "soil temperature", "soil texture") and their overall contribution to "soil physical properties".

H) If more than three narrower terms of the same hierarchy are at the same level, the indexer may choose to use their BT to represent this concept.
Example:
If an article discusses "barley", "millets", "buckwheat", "oats", "rice", "rye", and "wheat", an indexer may choose to use the descriptor "small grains" instead of these Narrower Terms.

4.1.1.c - General considerations

I) Many concepts are composed of more than one factor or component. Index each concept completely, i.e., for all its factors. It will often be necessary to assign more than one descriptor to index a single

concept.
Examples:
> The concept of <u>spleen weight</u> is composed of two concepts: "spleen" and "tissue weight."
> The concept computer monitors would be indexed using "computer hardware" and "monitors"

This issue is also addressed throughout Section 3.2, beginning with Item 2 under <u>OBJECT or CENTRAL SUBJECT</u>

J) However, do not use two descriptors to represent a single concept when a precoordinated descriptor for the concept exists.
Example:
> For the concept of "soil temperature" do not use "soil" and "temperature" individually

K) The order of descriptors is not critical to retrieval of information from AGRICOLA.   However:
> 1) AGRICOLA users may perceive the first descriptors to be the most important.
> 2) Proximity searching (searching for the occurrence of one word or term near another) is available in many search formats

Therefore, NAL indexers may wish to arrange their descriptors such that:
> 1) the main concepts of a document appear as the first descriptors
> 2) related concepts are in proximity to one another

L) There may be situations where descriptors in the *NALT* are not adequate at the desired level of specificity.   There may also be instances when hierarchies, definitions or scope notes prohibit the desired use of a descriptor.   Occasionally a concept may not be represented in the *NALT* in any way.   The goal of indexers should be to bring AGRICOLA users "as close as possible" to the concept using the *NALT* descriptors, in an accurate and meaningful manner.   Next, <u>after carefully checking in the *NALT*</u>, assign identifiers as described in Section 4.2.

4.1.1.d - Use of Taxonomic Names (See Supplement C for a Summary of this section)

<u>General Considerations</u>
M) For scientific names, use the highest level of specificity available in the *NALT* in field 650.   This might be order, family, genus, or species.   If necessary, reflect a greater level of specificity in identifier (field 653.)   Standards and guidance are provided below by general organism type.

N) In cases where the use of a scientific name is mandated by this *Guide* but is not available in the document at hand, it is the responsibility of the indexer to seek it out.   Often, a quick way to do this, is to search the AGRICOLA database, or the Internet.   However, common names are highly variable and often very localized.   Therefore, if an indexer cannot trace the scientific name at any level of the taxonomic hierarchy: 1) with a reasonable degree of certainty, and 2) within a reasonable period of time (a few minutes), it may be necessary to assign a context or role descriptor to convey the intended concept.   The scientific name provided by the author(s) may be added as an identifier.

O) In the *NALT* the "common" or "group name" of an organism may be a nondescriptor for the taxonomic name.   Also, the reverse may be true; the taxonomic name may be a nondescriptor for the "common" or "group name."   Adhere to the rules for nondescriptors in these instances (Section 4.1.1.a, Item B and Section 4.2.2, Item F).

P) If a role or context descriptor is the BT of one or more organisms or products, it may be assigned (see Section 4.1.1.b, Item H.)

Q)   <u>Plants</u>

1) Index the taxonomic name for the plant specified in the document.
2) Add the commodity or product name where available.   Check the RT relationship in the *NALT* for the commodity name.
Example:
>   Weed management systems for Georgia cotton (Gossypium hirsutum L.) is indexed as "Gossypium hirsutum" and "cotton."

3) Based upon the circumstances of the research or discussion in hand, consider the role of the plant, e.g., "weeds," "medicinal plants," "poisonous plants," "conservation plants," etc.   Perform a string search in the thesaurus on "plants" or consult the "plants" hierarchy to find many of these role or context descriptors.
Example:
>   An article with the title: "Growing dandelions for food and profit", would be indexed with the terms "Taraxacum officiale" and "food crops"; but "Control of dandelions in turfgrass" would be assigned the terms   "Taraxacum officiale" and "weeds".

R)   Plant products
1) Use the commodity/product name of the plant if it is available as a descriptor.
2) If the commodity name is not available, use the taxonomic name and add the commodity/product name to the identifier field.
Example:
>   Texture of cooked carrots after frozen storage is indexed as "carrots." Do not assign "Daucus carota."

3) Based upon the circumstances of the research or discussion in hand, consider the role or context of the plant product(s), e.g., "chilled foods," "convenience foods," "textile fibers" and "stored products." Consult the "agricultural products" hierarchies such as "foods," "nonfood products" or "plant products." Perform a string search in the *NALT* on "products" to locate many of these role or context descriptors.
,Example:
>   Fiber strength of cotton polyester blends is indexed as "cotton" and "textile fibers."

S)   Fungi
1) Index the taxonomic name for the fungus specified in the document, including the subspecific designation where it is available as a descriptor.
2) Based upon the circumstances of the research or discussion in hand, consider the role or context of the fungus, e.g., "mycorrhizal fungi," "plant pathogenic fungi," "entomopathogenic fungi," "thermophilic fungi," etc.   Perform a string search in the *NALT* on "fungi" or consult the "fungi" hierarchy to find many of these role or context descriptors.
Example:
>   An article on "Schizophyllum commune and sapstain development on jack pine logs", would be indexed using "sapstain fungi" and "Schizophyllum commune."

T)   Bacteria
1) Index the taxonomic name for the bacterium specified in the document, including the subspecies designation where available as a descriptor.
2) Based upon the circumstances of the research or discussion in hand, consider the role or context of bacteria, e.g., "nitrogen-fixing bacteria," "rumen bacteria," "lactic acid bacteria," "cellulolytic microorganisms," etc.   Perform a string search in the *NALT* on "bacteria" and/or "microorganisms" or consult the "bacteria" hierarchy to find many of these role or context descriptors.
Example:
>   An article on "cloning a beta-glucosidase from the cellulolytic actinomycete Thermobifida fusca" would be assigned the descriptors: "Thermobifida fusca," and   "celluloytic microorganisms."

U)   Protozoa
1) Index the taxonomic name for the protozoan specified in the document.

2) Based upon the circumstances of the research or discussion in hand, consider the role or context of protozoa, e.g., "entomopathogenic protozoa," "rumen protozoa," "soil fauna," etc.   Perform a string search in the *NALT* on "protozoa" and/or "microorganisms" or consult the "microorganisms" hierarchy to locate many of these descriptors.
Example:
>An investigation of "a spinated type of Diplodinium in the rumen of two Japanese shorthorn calves" would be indexed with the terms: "Diplodinium" and "rumen protozoa."

V)   Viruses
1) Index the taxonomic name for the virus specified in the document.
2) Based upon the circumstances of the research or discussion in hand, consider the role or context of viruses, e.g., "plant viruses," "arboviruses," "invertebrate viruses," etc.   Perform a string search in the *NALT* on "viruses" and/or "microorganisms" or consult the "viruses" hierarchy to find many of these role or context descriptors.
Example:
>An article examining a "reverse transcriptase PCR assay detection of three fish viruses" would be indexed with the names of the three viruses ("infectious hematopoietic necrosis virus," "infectious pancreatic necrosis virus" and "viral hemorrhagic septicemia virus") and the descriptor "vertebrate viruses."

W)   Arthropoda (all members)
1) Index the taxonomic name for the arthropod specified in the document.
2) Add the "common group name" when it is appropriate, e.g., "mites", "crabs", "lobsters", "insects", etc.
3) Based upon the circumstances of the research or discussion in hand, consider the role or context of arthropods, e.g., "soil arthropods," "hematophagous arthropods," "predatory mites," "insect pests," etc. Perform a string search in the *NALT* on "arthropods," "mites," and/or "ticks" or consult the "arthropods" hierarchy to find many of these role or context descriptors.
Example:
>An article on the "efficacy of a diatomaceous earth against Acarus siro in small bins of wheat under conditions of low temperature and high humidity" would be indexed with "Acarus siro" and "storage mites".

X)   Invertebrates other than arthropods
1) Index the taxonomic name for the invertebrate specified in the document.
2) Add the "common group name" when it is appropriate, e.g., "snails,"   "oysters", etc.
3) Based upon the circumstances of the research or discussion in hand, consider the role of invertebrates, e.g., "soil invertebrates," "earthworms," "plant parasitic nematodes," etc.   Perform a string search in the *NALT* on "invertebrates," "nematodes," and/or "worms" or consult the "invertebrates" hierarchy to find many of these role terms.
Example:
>"The prevalence of feline heartworm disease in Italy" would be indexed with the descriptors: "Dirofilaria immitis" (the taxonomic name of the helminth) and "heartworms".

Y)   Fish
1) Index the taxonomic name for the fish specified in the document.
2) Add the common group name of the fish when it is appropriate, e.g., "trout," "catfish," etc.
3) Based upon the circumstances of the research or discussion in hand, consider the role or context of fish, e.g., "marine fishes," "aquarium fish," "farmed fish," etc.   Perform a string search in the *NALT* on "fish," or consult the "fish" hierarchy to find many of these role or context descriptors.
>Example:
>"Seasonal population changes of parasitic copepods on species of farmed carp in China" would be assigned the descriptors "Ctenopharyngodon idella", "Hypophthalmichthys nobilis", "carp" and "farmed fish". (It would also be assigned "copepoda" and "ectoparasites" [see Arthropoda above])

Z)   Amphibians
1) Index the taxonomic name for the amphibian specified in the document.
2) Add the group name "frogs," "salamanders," or "toads" when it is appropriate.
3) Based upon the circumstances of the research or discussion in hand, consider the role or context of amphibians, e.g., "invasive species," "endangered species," "beneficial organisms," etc.   Perform a string search in the *NALT* on "amphibians," "organisms," or "species" to find many of these role or context descriptors.
Example:
>   The article "Non-invasive treatments inducing spermiation in Bufo americanus toads" would be
>   indexed with the descriptors "Bufo americanus", "toads" and possibly "beneficial organisms."

AA)   Reptiles
1) Index the taxonomic name for the reptile specified in the document.
2) Add the group name for the reptile where appropriate, e.g., "snakes," "alligators", etc.
3) Based upon the circumstances of the research or discussion in hand, consider the role of reptiles, e.g., "invasive species," "endangered species," "beneficial organisms," etc.   Perform a string search in the *NALT* on "reptiles," or "organisms" to find many of these role terms.
Example:
>   An article appearing in a veterinary journal investigating "Intraocular pressure of mature
>   loggerhead sea turtles (Caretta caretta) held in various positions" would be indexed with "Caretta
>   caretta" and "turtles".   The indexer would probably not convey the "role" of the turtle because it's
>   not a key concept in this instance, however "animal physiology" or one of its narrower terms is a
>   possibility.
>
>   However, an article with the title "South East Asia's vanishing turtles" would be indexed with the
>   taxonomic names as needed, "turtles" and "endangered species".

BB)   Mammals and Birds (**not** livestock, pet or experimental animal as context or role)
1) Index the taxonomic name for the mammal specified in the document.
2) Add the "common group name" (often an RT relationship in the *NALT*)
3) Based upon the circumstances of the research or discussion in hand, consider the role or context of animals, e.g., "wild animals," "game animals," "zoo animals," "game birds," "old animals", "wild birds," etc. Perform a string search in the *NALT* on "birds," "animals," "mammals," or consult the "animals" hierarchy to find many of these role or context descriptors.
Example:
>   "Health protocol for rescued hawks (Accipitridae)" would be indexed using the descriptors
>   "Accipitridae", "hawks" and "wild birds."

CC)   Mammals and Birds (as livestock, experimental animals and pets)
1) Index the "common group name" of the mammal.
2) Based upon the circumstances of the research or discussion in hand, consider the role or context of the animals, e.g., "racing animals," "pets," "old animals," etc.   Perform a string search in the *NALT* on "animals," or "mammals" or consult the "animals" hierarchy to find many of these role or context descriptors.
3) Add breed name of the animal when it is significant to the research.
Example:
>   A discussion of "facility decontamination techniques used to improve the health and welfare of
>   transgenic mice" there is data presented on the condition of "old mice".   The descriptors for this
>   article should include: "mice", "old animals", and "transgenic animals" and "laboratory animals"
>   (See Item DD below).
>
>   "A cross-sectional study of paratuberculosis in 1155 Danish Holstein-Friesian,   Ayrshire and

Jersey dairy cows." For this article, the three breed names "Holstein," "Ayrshire (cattle breed)," and "Jersey" would be assigned along with "dairy cows".

DD)   Laboratory Animals
1) Do not supply any taxonomic indexing for laboratory animals; use only the "common group name" as given in the document.
2) If, however, there is no descriptor for the common or group name, index the taxonomic designation for the subject as in instructed for "CC) Mammals and Birds (**not** livestock, pet or experimental animal as context or role)" above.
3) For experimental animals, either as the subject of research or as an experimental tool, add the descriptor "laboratory animals".
Example:
> For a human nutrition research project studying the effect of beta-carotene intake on antioxidant status where rats are used as experimental tool, index with   "rats," and "laboratory animals," not "Rattus rattus."

4.1.1.e - Use of descriptors for diseases and experimental animal models
A primary consideration in this section are indexing practices that will recognize the relationship(s) between the host organism, the disease organism and the resulting disease.   Unless noted, in the circumstances below, the specificity of descriptors will be assigned as described under Specificity, Section 4.1.1.b

EE)   Animal models
1) Limit the use of the descriptor "animal models" to projects where the animal is being used as a model for disease.   These animals may be bred for or have a hereditary proclivity for certain conditions that closely mimic similar conditions in humans.
2) In documents of this sort, index the animal as for laboratory animals above and also add the descriptor "animal models."
3) Add the term "human diseases."
Example:
> "Spontaneous porphyria of the Long-Evans Cinnamon rat: an animal model of Wilson's disease." Index with "porphyria," "animal models," "human diseases," and "rats."

FF)   Diseases/infections in animals
1) Index with the most specific descriptor available for the disease/infection.
2) Add the taxonomic designation for the infecting organism, if known.   Consult the *NALT* related term for links between disease names and causal agents, e.g., "Aujeszky disease," RT: "Suid herpesvirus 1"
3) Consider the role or context of the infecting organism, such as "entomopathogenic nematodes," or "vertebrate viruses."
Examples:
> Index Taenia ovis taeniasis as "taeniasis" and "Taenia ovis."
>
> Index a Hymenolepis nana parasitosis as "cestode infections" and "Hymenolepis nana."

4) Index diseases/infections in animals with the appropriate descriptor for the disease and the pre-coordinated "animal diseases" heading.
Examples:
> Index cystic ovaries in cattle as "ovarian cysts" and "cattle diseases."
>
> Index congestive heart failure in Great Danes as "congestive heart failure" and "dog diseases."
>
> Index Brucella abortus infection in cattle as "bovine brucellosis" and "Brucella abortus, but not as "cattle diseases" since "bovine brucellosis" is a Narrower Term under "cattle diseases" in the

hierarchy.

GG)   Plant diseases

1) Index diseases in plants with the appropriate descriptor for the disease from the "plant diseases and disorders" hierarchy.   Note that several may be applied for one article, e.g., "tree diseases" and "root diseases."

2) Add the taxonomic designation for the infecting organism, if known.

3) Based upon the circumstances of the research or discussion in hand, consider the role of the infecting organism, such as "plant pathogenic nematodes," or "plant viruses."

Examples:

> Index Phytophthora cinnamomi root rot as a cause of oak mortality as "Phytophthora cinnamomi," "tree diseases," and "root rot."
>
> Index a Ustilago segetum infection of oats as "smut diseases" and "Ustilago segetum"
>
> Index a Meloidogyne incognita infection of alfalfa as "root-knot nematodes," and "Meloidogyne incognita."

Assignment of descriptors - Summary

1) NAL indexers will only use *NALT* descriptors in field 650.

2) NAL indexers will assign *NALT* descriptors in a manner that is consistent with their Broader Terms

3) "Use" instructions, definitions and scope notes in the *NALT* will be strictly observed.

4) Concepts will be expressed, using *NALT* descriptors at the most specific level of specificity used by the author of the document in hand.   If, however, an indexer is using more than three Narrower Terms of the same hierarchy at the same level, he or she may choose to use the Broader Term to represent this concept.

5) Two descriptors may not be used to represent a single concept when a pre-coordinated descriptor for the concept exists in the *NALT*.

6) In circumstances where:

> A) Concepts are not represented at the required level of specificity
>
> B) Concepts are not covered or covered adequately in the *NALT*
>
> C) The *NALT* word block erroneously restricts the use of one or more terms

Indexers will use guidelines A through C in Section 4.2 - Assignment of MARC tag 653 identifiers, to assign terms.

7) Indexers will assign taxonomic and common names of organisms and products according to Use of Taxonomic Names and in a manner that is consistent with all other standards in Section 4.1.

8) Indexers will assign descriptors for diseases (human, animal and plant) and experimental animal models according to the sections on Use of descriptors for diseases and experimental animal models and in a manner that is consistent with all other standards in Section 4.1.

9) NAL indexers should examine word blocks carefully for each descriptor considered for assignment.

10) Indexers may use the Broader Term of any assigned descriptors if they feel the document in hand should be retrieved on this broader concept.

11) A descriptor and its Broader Term may be used if the concepts are addressed in the article at both levels.

12) It may be necessary to use two descriptors to represent a single concept.

13) The "Indexing Selection Scope and Coverage Guidelines", Supplement B, can help indexers assign terms to convey the relevance of a document to AGRICOLA.

14) The order of descriptors is not critical to information retrieval; however, indexers may choose to consider proximity and order when arranging descriptors.

15) NAL indexers may use as many descriptors as necessary to convey all concepts identified   for indexing.   However, when the number of descriptors for one document exceeds 20 (twenty), indexers are encouraged to re-evaluate their choices.   Subsuming some Narrower Terms under their Broader Terms

may provide AGRICOLA users with a more meaningful record.

16) Problems with the *NALT* including missing terminology; restrictive hierarchies, definitions and scope notes; or other problems must be brought to the attention of the NAL Thesaurus staff.

4.1.2 - MARC tag 651 geographical descriptors

A) Use the instructions and guidance provided in sections 4.1.1.a through 4.1.1.c when assigning geographical descriptors.

B) Generally, if the work is conducted in a laboratory or a greenhouse, use of a geographical descriptor is usually not warranted, unless it is apparent where the analyzed material originated.

C) The geographical origin or provenance of a strain or line <u>may</u> be of significance in a way that warrants use of a geographical descriptor even if the work is done in vitro.   Note, however, that this does not apply to geographical words appearing in the nomenclature of strains of bacteria and other organisms.

D) For articles in which subjects (animals, plants, humans) originating from one country/area are studied in a country to which they have migrated or been imported, do not apply a geographical descriptor for the country of origin.   Apply the geographical descriptor from the country in which the subjects were studied and indicate their geographical or ethnic origin in some other way.
Example:
> A study about food habits of Salvadorans living in Manhattan would take "New York" and "Hispanics" as descriptors.

However, this practice should be applied only in the case of living subjects studied in a natural environment.
Example:
> An article about insect specimens collected in Ghana and studied in a laboratory at Agricultural Research Service in Maryland would take "Ghana" not "Maryland" as its geographical descriptor.

E) The affiliation of the author(s) may sometimes be a valuable clue in deciding upon geographical descriptors, but it should never be used as the sole criterion for doing so.

F) There is no limit to the number of geographical descriptors which can be used for a given article. However, in most cases where more than five or six are applicable, it will probably be more useful to apply terms for broader geographical units that subsume the others.

Assignment of geographical descriptors - Summary

1) All of the instructions provide in sections 4.1.1.a through 4.1.1.c are to be used by indexers when applying geographical descriptors

2) NAL indexers will assign geographical descriptors in a manner that is consistent with Section 4.1

3) Geographical terms may not be assigned solely upon the appearance of geographical words in the nomenclature of strains of bacteria and other organisms**.**

4) For articles in which subjects (animals, plants, humans) originating from one country/area are studied in a country to which they have migrated or been imported, apply the geographical descriptor from the country in which the subjects were studied and indicate their geographical or ethnic origin in some other way. This applies only in the case of living subjects studied in a natural environment.

5) Geographical terms may not be assigned solely upon the affiliation of the author(s).

6) Generally, if the work is conducted in a laboratory or a greenhouse, use of a geographical descriptor is not warranted.

7) The geographical origin of a strain or line may sometimes be of significance in a way that warrants use of a geographical descriptor even if the work is done in vitro.

8) There is no limit to the number of geographical descriptors which can be used for a given article. However, in most cases where more than five or six are applicable, it will probably be more useful to apply terms for broader geographical units that subsume the others
9) Problems with the *NALT* including missing terminology; restrictive hierarchies, definitions and scope notes; or other problems must be brought to the attention of the NAL Thesaurus staff.

4.2 - MARC tag 653 Assignment of identifiers

The *NALT* should be used to index the article as completely as possible. If additional subject description is needed after indexing the article with the *NALT* descriptors, identifiers may be used.   Identifiers are uncontrolled subject terms not found in the *NALT* either as descriptors or nondescriptors.

Identifiers are used to:
        a) achieve a higher level of specificity
        b) further enhance retrieval.

4.2.1 - When to use identifiers
A) Concepts not represented at the desired level of specificity in the *NALT*
If a concept that should be indexed cannot be found after searching *NALT*, use the best available broader descriptor(s) to convey the concept(s).
Example:
        If the article is about 'sacroglycans', index the articles with the BT "polysaccharides" in the 650
        field and 'sacroglycans' in the 653 field.

When creating an identifier for a product or organism, consider the use of a role or context descriptor as a means of conveying the desired concept in field 650. (See section 4.1.1.d)

Use identifiers for significant local geographical concepts. e.g., add 'Milwaukee, Wisconsin', to field 653 if the city itself is emphasized.   ("Wisconsin" will, of course, be entered in field 651.)

Use identifiers for taxonomic names.   e.g., the species 'Senecio arvensis' is not in the *NALT* and so must be entered in field 653.   ("Senecio", which is in the *NALT*, will represent this species in field 650.)

Use identifiers for commodity names that are not in the *NALT*.   Use most specific   taxonomic descriptor available in the *NALT* in field 650.

B)   Subjects and concepts not covered well by the *NALT*.
To enhance retrieval, use the identifiers to index new concepts and emerging technology not yet included in the *NALT*.   Look in the *NALT* for a broader term (BT) to index the concept.   If a broader term cannot be found, consider a related concept.
Example:
        "photosynthesis" might be used in the descriptor field to index the concept of electron energy
        levels in an article about the molecular events in a photosynthesis study with 'molecular energy
        levels' added to the identifier field.

Do not use a 650 descriptor which will misrepresent the subject content of the article.   Use identifiers liberally to aid retrieval but not hurt consistency.   It is important to add new concepts to the identifier field to enhance retrieval and to refer suggestions for new terms to the NAL Thesaurus staff.

C).   *NALT* word block restriction
Use the identifier field to index concepts for which the descriptors in the *NALT* are in hierarchies that restrict their use according to section 4.1.1.a, Item C.   After carefully searching the NALT for the

descriptor(s) that express the desired concept(s), assign one or more identifiers.

D) Special Cases for the use of the identifier field:

> Use identifiers for clarification of some abbreviations, acronyms, initialisms, etc., in document titles. e.g., 'GDP' in a title is explained by adding 'gross domestic product' in field 653.

> Use identifiers for proper names not in the *NALT*.   E.g., 'Disaster Assistance Act   of 1988' or 'Alabama Home Economics Association' or 'Coalition for Peaceful Schools'.

> Use the American spellings or British words for identifiers.

4.2.2 - Restrictions of Use of Identifiers

E)   Do not use as identifiers terms which appear in the *NALT* as descriptors even if the thesaurus descriptor represents a concept other than the concept associated with the term in the document at hand. E.g., the descriptor "decline" carries a BT "plant diseases and disorders".   It is not permissible to enter "decline" in field 653 for a   document that discusses decline in some other context, such as human health.

F)   Do not use as identifiers terms which appear in the *NALT* as nondescriptors.   It is mandatory to follow the **"USE"** instruction in the *NALT* instead.   E.g., the descriptor   instructs: "sunlight USE solar radiation."   It is not permissible to enter "solar radiation" in field 650 and "sunlight" in field 653.

G)   Do not use long phrases as identifiers; identifiers should be in the same general format as descriptors in *NALT*.   E.g., 'effect of rototilling on garden yields' is not an appropriate identifier.

H)   Do not use identifiers as a short-cut to avoid searching the *NALT* for an appropriate descriptor.

Assignment of identifiers - Summary
1) Abbreviations, acronyms, initialisms, etc. will be spelled out in the 653 field when the appropriate term is not available as an *NALT* descriptor.
2) NAL indexers may not use descriptors which appear in the *NALT* as identifiers even if the thesaurus descriptor represents a concept other than the concept associated with
the term in the document at hand.
3) NAL indexers may not use as identifiers terms which appear in the *NALT* as non-descriptors.
4) Indexers should examine the *NALT* thoroughly before using the 653 field.
5) Problems with the *NALT* including missing terminology; restrictive hierarchies, definitions and scope notes; or other problems must be brought to the attention of the NAL Thesaurus staff.

4.3 - AGRICOLA Subject Category Codes

The Category Codes assigned to a document should represent that document as completely as possible and without any necessity to refer to the *NALT* descriptors assigned, and vice-versa. They are used separately, not in combination with one another, to represent the document, although, there may well be what appears to be redundancy in assignment of codes and descriptors.
Descriptors representing the same concepts represented by the assigned Category Code(s) should always be assigned, though most often the descriptors will be more specific than the codes to which they relate. To put this another way, a user should be able to comprehend why each Category Code was assigned by examining the assigned descriptors.
The reverse, however, is not necessarily true; descriptors may be used to bring out aspects of the article

which are not represented by the codes because these aspects are not treated in sufficient depth or with sufficient emphasis to merit assignment of a code.

In expressing concepts in the indexing languages, aim for as much CONSISTENCY as possible in applying Category Codes and descriptors to represent concepts. Use the same code(s) and the same descriptor(s) to represent the same concept each time you index that concept. Indexing will be valuable to AGRICOLA users only insofar as it is CONSISTENT.

The AGRICOLA Category Codes divide the field of agriculture into 21 broad subject areas. Each of these areas is further subdivided, but even the subdivisions are very broad. Each of the subdivisions carries an alphanumeric notation consisting of one letter (which remains the same within one of the 21 broad subject areas) and three numbers.   There are some hierarchical relationships within the scheme:

> L830 Animal Diseases - General
> L831 Animal Diseases - Fungal
> L832 Animal Diseases - Bacterial
> L833 Animal Diseases - Viral

Each code also has a 'title,' known as a 'section heading' (e.g., notation: J800 = section heading: Soil Conservation).
A) Descriptors representing the same concepts represented by the assigned Category Code(s) should always be assigned.

B) An unlimited number of Category Codes may be assigned per document.
C) Use relator codes (K001, L001, L002, L003, M001) to narrow the focus of large categories.
        - Never place relator codes in first position.
        - Never use relator codes without assigning at least one other code
D) Assign Category Codes on the basis of the subject of the work actually conducted in the study at hand; do not assign them on the basis of what the subject can be used for (implication).
E) Follow the instructions in Category Code Scope Notes that sometimes specify the order in which certain codes should be applied.
F) Never assign codes on the basis of the alphabetical index; always consult the Scope Note itself before assigning a code.

G) Use the most specific Category Code applicable.

Assignment of AGRICOLA Subject Category Codes - Summary
1) Indexers will assign one or more appropriate Subject Category Codes for each indexed document.
2) Descriptors representing the same concepts represented by the assigned Category Code(s) should always be assigned.
3)Use relator codes (K001, L001, L002, L003, M001) to narrow the focus of large categories.
        - Never place relator codes in first position.
        - Never use relator codes without assigning at least one other code
4) Assign Category Codes on the basis of the subject of the work actually conducted in the study at hand; do not assign them on the basis of what the subject can be used for.
5) Follow the instructions in Category Code Scope Notes that sometimes specify the order in which certain codes should be applied.
6) Use the most specific Category Code applicable.
7) The Category Codes assigned to a document should represent that document as completely as possible and without any necessity to refer to the *NALT* descriptors assigned, and vice-versa.
8) Assign the codes in descending order of importance
9) Never assign codes on the basis of the alphabetical index; always consult the Scope Note itself before assigning a code.

Section Five - Communicating with NAL Thesaurus Staff

Individuals with comments concerning the use of the *NALT* are welcome to contact the NAL Thesaurus Staff:

      1) For general inquiries: thes@nal.usda.gov
      2) To suggest changes to the NAL: http://agclass.nal.usda.gov/agt/contact1.htm
      3) Mailing address: National Agricultural Library, c/o Lori Finich, Room 011, 10301 Baltimore Ave., Beltsville, MD 20705

Bibliography

1) AGRICOLA - Guide to Subject Indexing, US Department of Agriculture, National Agricultural Library, December 1990.
2) Guide to indexing for AGRIS and CARIS, Monique Bonichon, FAO-AGRIS/CARIS, April 1994.
3) Indexing Guidelines for ARIS Research Projects, 3/21/01.
4) *CAB Thesaurus*, CAB International, 1995
5) *NAL Agricultural Thesaurus*, 2003 Edition, http://agclass/nal.usda.gov/agt/agt.htm

Supplement A

Indexing Criteria for Non-selection

Journals, individual journal articles or other publication formats may be **non-selected** for indexing on the basis of their timeliness, length, treatment, or form as described below. Definitions of publication types can be found in *500 Notes: A Guide to Writing Notes Field Annotations*.

Occasionally, there are overriding circumstances that would result in the selection of a document that would normally be non-selected. Indexers should use good judgement in these situations. From time to time, a special request may be made to index items that would normally be omitted under these guidelines. These special requests are approved by the Indexing Supervisor and should be discussed before indexing begins.

TIME
All items that are received by indexers through routine workflow or by special assignment are indexed regardless of publication date. Periodically, holdings are analyzed for missing issues or "gaps". Items retrieved through "gapping" may go back as much as 5 years.

LENGTH
1. Non-scientific articles less than one page. (Articles on insect or plant taxonomy and

nomenclature are taken regardless of length. New cultivar and germplasm registrations are taken without restriction on length.)
2.   Notice of awards given to agricultural scientists if less than one-half page.
3.   Biographies or obituaries of agricultural scientists if less than one-half page.

TREATMENT
1.   Personal experiences, unless an original device or method is used.
2.   Most popular articles on amateur gardening, home processing of foods, bee keeping, poultry or rabbit raising, and similar materials unless written by USDA or State Experiment Stations.
3.   Reports of meetings, symposia, or conferences that do not contain full texts of papers.
4.   Success stories of local personalities/enterprises using non-scientifically controlled methods of production. However, an exception is made for "alternative farming practices".

FORM
1.   Courses of study.
2.   Show catalogs
3.   Forms.
4.   Newspaper articles
5.   Prize papers below the master's level.

6.   Student publications.
7.   Restricted use publications (unless restriction has expired at time of input.)
8.   Articles signed with pseudonyms.
9.   Articles with date lines, news reports from cities and similar items.
10. Editorials, unless by USDA personnel or of clear agricultural, fishery, or forestry importance with distinguishing title.
11. Interviews, unless in unusual cases, e.g., USDA Agency Head or higher, prominent agricultural scientist.
12. Monthly hints type of article.
13. Presidential addresses without unique title, unless by USDA program/project personnel or of clear agricultural, fishery, or forestry importance.
14. Regularly featured columns, without distinguishing title that treats specific topic.
15. Translations presented as typed manuscripts, where the vernacular version appears under separate cover. This type of translation is cataloged.
16. Unsigned articles except when of clear agricultural, fishery or forestry importance.
17. Abstracts or poster session presentations are not indexed, regardless of length, unless part of a special project.
18. Book reviews.
19. Software reviews.
20. Reprints, unless they are from USDA scientists and staff or are part of a special project

21. Letters to the editor, except those in scientific journals which are at least one page in length and have a distinguishing title.

22. Microforms.

23. Music, except for songs or music composed for Woodsy Owl, Smokey the Bear, Bac, Thermy and other USDA characters, printed in USDA numbered series or in signed chapters appearing in monographic publications.

24. Oral histories.

25. Dissertations, theses.

26. Foreign language journals and monographs. Individual foreign language articles in English-language journals can be indexed minimally if only a translated title can be determined. They may be indexed fully if a translated title and English-language abstract are available. Once, again, indexers are asked to use good judgement in these situations.

27. "Panel discussions" when they constitute the entire piece rather than comments or discussions accompanying an article.

28. Transcripts of proceedings.

Supplement B
Indexing Selection Scope and Coverage Guidelines

These guidelines are used to select documents for indexing based upon their subject scope. It is advisable to become familiar with the guidelines in every subject to avoid incorrect exclusion of an article.   For example, an article may not be selected under the Food and Non-Food Processing and Manufacture (except Feed) guidelines because its topic is "labor requirements in the food processing industry". However, it may be entirely appropriate to select and index this article because it falls within the Agricultural Economics subject scope guidelines.

TABLE OF CONTENTS

Agriculture (general)	
General description:	Economic, historical, technical, commercial, sociological, legal, financial, educational, biographical, and other aspects of agriculture. General descriptions of U.S. and world agriculture when agriculture represents a significant part of the article.
Includes, but not limited to:	Agriculture, fisheries, and forestry in its wide sense from agricultural institutions, societies, cooperative, etc.
Excludes:	Articles that cover a country in general and merely touch on agriculture as one of many industries. Statistical documents that list agriculture as one of many topics covered.

Animal Production	
General description:	General and specific animal husbandry.
Includes, but not limited to:	General production and care of domestic animals: rearing, judging, testing, training, identification (e.g., branding), sexing, pen-raised animals. Housing requirements in relation to the animal itself. Livestock biology: anatomy, cytology, histology physiology, paleontology, rumen microorganisms and their biology. Natural animal behavior, communication, instinct, learning. Animals in relation to their environment, including habitat, climatic factors that affect habit. Effects of external influences on biological processes in domestic and non-aquatic animals. Wildlife articles that take place in National Parks or National Forests. Livestock feeding: feed, animal nutrition nutritive value of feeds, feed formulas, effects of feeding on animals, feed supplements, feedlots. Livestock breeding: breeds, breed performance, artificial insemination, normal reproduction. Animal wildlife management as it relates to the supply of grasses and other natural resources that the animal requires. Animal welfare.
Excludes:	Purely sporting and racing articles (physiology of muscles in a

Animal Production	
	racehorse, however, is animal physiology) Pigeons and cockfighting (unless from a breeding, feeding, or disease angle) Animals used for experiments in human medicine where the disorder is only found in humans, animal extracts (except extracts from insects)
Notes:	Housing in terms of construction of barns, etc., is **Agricultural Engineering** . Livestock pathology is **Veterinary Medicine**. Abnormal reproductive physiology is **Veterinary Medicine**. Animals used as models demonstrating the effect of diet on human health/disease is **Human Nutrition**.

Animal Production (Laboratory Animals)	
General description:	Includes articles dealing with the care, handling, and management of laboratory animals/colonies, excluding primates, and their indigenous diseases of interest of veterinarians and agricultural research institutes. Articles written by or about agricultural research institutes are not necessarily in scope; the subject matter must be considered appropriate.
Excludes:	Articles dealing with induced diseases of laboratory animals or other experimentation with them unless of interest to veterinary medicine as related to agriculture (livestock production, food inspection, etc.)
Notes:	Animals which are considered domestic in one country may not be so designated in another. Example: In United States the elephant is not considered a domestic animal, but in India it is. When indexing animal articles, the indexer should consider the region in which the animal is being used. Articles in human medicine journals which deal with cats, dogs, sheep, cows, pigs, etc., are handled as follows: 1) Articles involving larger domestic animals (e.g., pigs, sheep, cattle, horses) which can be related to natural conditions or problems developing in these animals are considered in scope. 2) Articles involving small domestic animals (e.g., chickens, cats, dogs) are considered in scope only if the condition is natural to the animal or in the case of a disease, the disease naturally occurs in that animal. 3) Articles using chick embryos, animal extracts (except extracts from insects), or miscellaneous parts

Animal Production (Laboratory Animals)	
	of domestic animals only as growing media (when the condition being studied is not natural to the animal) are not taken.

Agricultural Economics
Includes, but not limited to:	Economics of synthetic products when the products are in competition with agricultural products and this comparison is clearly made. Land economics: land settlement and colonization, land classification, utilization, tenure, farm mergers, location theory, land reform, land surveys, valuation, zoning, ownership, regional planning, involving land only, recreational use of farm land. General description of U.S. and world economies when at least one-half of the article is devoted to agriculture. Macroeconomic theory involving aggregates or whole systems of individual or groups of commodities as in total consumption, employment, or income. Economic analysis: economic forecasting, economic appraisal. Agricultural situation and outlook. Economic planning. Labor: manpower, employment, unemployment, migratory or contract labor. Economic modeling, econometrics, General farm organization. Agricultural credit and financing. General agricultural taxation. General agricultural accounting. General agricultural investment. General agricultural income, wages, pay for labor. marketing and distribution of food and feed products; cooperatives. Consumer economics: consumer price index, buying habits and preferences, consumer movements.

Agricultural Education	
General Description:	Local, national, and international education plans, policies, and programs.
Includes, but not limited to:	Agricultural teaching, demonstrations, extension and advisory work. Short courses, distance teaching, correspondence courses. Schools, colleges, etc. Television, radio, agricultural journalism.

Agricultural Engineering	
General Description:	General and specific articles on the design, materials, construction, and maintenance of farm machines and equipment.
Includes, put not limited to:	Cultivation, tillage, fertilization, planting, harvesting, spraying, dusting equipment. On-farm processing equipment. Hand and power machines/tools. Farm safety and accident prevention equipment. Storage structures. Walls and fences. Rural roads. Farm water supply systems.

Agricultural History	
General Description:	Agricultural history in general and specifically: prehistoric, ancient, medieval, and modern.
Includes, but not limited to:	Biographies, obituaries of persons in agriculture, fisheries, and forestry particularly USDA personnel (usually Agency Head or higher; professionals such as forest rangers, veterinarians, cereal chemists, geneticists).

Aquaculture	
General Description:	Agricultural application of aquacultural organisms.
Includes, but not limited to:	The biology and ecology of cultured species where directly relevant to aquacultural situations. Aquaculture for purposes of human and animal food supply.

Biochemistry	
General Description:	Articles on biochemistry where there is a direct relation to agriculture, fisheries, or forestry
Includes, but not limited to:	Livestock. Food fish. Plants.

Biochemistry	
	Insects. Metabolism of nutrients in humans

Biology-General	
General Description:	Articles on biology where there is a direct relation to agriculture, fisheries, or forestry.

Biotechnology	
General Description:	For a biotechnology article to be in scope, there must be a direct relation to agriculture, fisheries or forestry.
Includes, but not limited to:	Animal biotechnology. Plant biotechnology. Forestry biotechnology. Feed science/fodder applications. Food science applications. Manipulation of pest of diseases organisms; biological control of pests, weeds, diseases. Manipulation of symbiotic/non-symbiotic soil organisms involved in plant nutrition Use of microorganisms in the development and production of renewable energy and petrochemical substitutes (ethanol, methanol, methane, etc.) when using agricultural products, byproducts or residues as a substrate or raw material. Microorganisms used in bioremediation of agricultural pollutants (agricultural chemicals, pesticides, etc.). Animal and plant cell/tissue culture used for the production or hormones, proteins, enzymes or antibodies useful in agriculture; diagnostic systems related to agriculture; viral pesticide production in insect cells. Monoclonal antibodies or hybridoma culture used for detection of plant and animal disease, production of vaccines, etc. Fermentation; used to produce antibiotics, alcohols, acids, vaccines, etc. used in agriculture; fermentation resulting in the production of food or feedstuffs; fermentation used in the bioconversion of agricultural products, byproducts or wastes into other substances. Use of microorganisms in the production of solvents, (acetone, ethanol, butanol, etc.) when using agricultural products, byproducts or wastes as a substrate or raw material. Microbial production of gums, emulsifiers, carbohydrates

Biotechnology

	(xanthan, levan, dextran, etc.), when agricultural/forestry products, byproducts or residues are used as a substrate or raw material. Microbial production of proteins/enzymes used in the conversion of agricultural/forestry products, byproducts or residues into useful substances; microbial production of proteins/enzymes used in food or feed science, forestry science, etc. Single cell protein production. Risk assessment. Legislation, regulations.
Excludes:	Commercial production of materials or organisms developed through biotechnology. General fermentation or process engineering articles where no organism is mentioned (fermentor/bioreactor design, aeration, process computers, product recovery, etc.) Human medicine applications, human gene therapy. Manufacturing facilities.
Notes:	"Biotechnology is broadly defined as the use of biological processes of microbes, and of plants or animal cells for the benefit of humans" (www.ers.usda.gov/) The use of biological processes (including genetic engineering) to develop products, using intact organisms, such as yeasts and bacteria, or natural substances (e.g., enzymes) from organisms. Representative list of topics and techniques which are considered in scope when found to be agriculturally related:

biodegradation of agricultural wastes	genetic engineering
biomass conversion	genetic transduction
clones	genetic transformation
cloning techniques (plasmids)	genetic vectors
DNA amplification	hybridomas
DNA fingerprinting	molecular sequencing
DNA footprinting	monoclonal antibodies
DNA hybridization	polymerase chain reaction
DNA probes	production of antibiotics,
environmental effects of	hormones, vaccines
biotechnology on humans	protein sequencing

Biotechnology	
and animals structure enzymes fusion gene mapping DNA gene sequencing endonucleases gene splicing length fragment gene structure polymorphisms gene substitution gene transfer genetically modified organisms	protein protoplast recombinant restriction restriction tissue/cell culture transfection

Chemistry	
General Description:	Publications on chemistry where there is a direct relation to agriculture, fisheries, or forestry.

Computer Science	
General Description:	Publications on computer science where there is a direct relation to agriculture, fisheries, or forestry
Includes, but not limited to:	Computer programs applied to forestry, crop simulations, economic forecasting, farm management, commodities marketing, economic modeling, measuring photosynthetic and animal metabolic processes, weather modeling, watershed modeling, livestock feeding simulation. Impact of technology on rural environments and rural communities in developed and developing countries.

Conservation	
General Description:	Publications in which planned management of natural resources has a direct relation to agriculture, fisheries, or forestry
Includes, but not limited to:	Plant wildlife management. Preservation of wild grasses, etc., and water necessary to support animal wildlife.

Conservation	
	national parks. Restoration/reclamation of natural environment. Recreational land in wilderness areas, especially if a National Park or Forest. Animal wildlife management.

Cytology	
General Description:	Publications in which cytology has a direct relation to agriculture, fisheries, or forestry
Includes, but not limited to:	Wood structure. Microscopic structure of food, feed, other agricultural products. microscopic structure of plant, insect, and livestock tissue.

Energy	
General Description:	For a publication on energy to be considered in scope, there must be a direct relation to agriculture, fisheries, or forestry.
Includes, but not limited to:	Conservation and expenditure of energy in production, processing, marketing, and use of crops, livestock, forestry, etc., in rural housing, transportation and development. Rural electrification. Energy in food/feed processing. Biomass energy sources. Alternative sources of energy: solar, wind, geothermal, coal, lignite, oil shale, peat waste heat, wastes, hydropower, photovoltaics, etc. Consequences of energy production and use: social implications, land use, population, radiation, ozone, pollution, etc.

Entomology	
General Description:	All entomological literature is taken on the theory that it is all of potential interest to agricultural researchers. For convenience, certain other arthropods of interest to agriculturists are included under the heading of entomology;

Entomology	
	namely, millipedes, centipedes, ticks, mites, sowbugs, pillbugs, and the like.
Includes, but not limited to:	Insect parasites or pests of man and other animals. Apiculture. Sericulture. Extracts from insects. Human medicine if the insect is extensively discussed. Insects for biological control. Drosophila and other insects as test organisms. Insects as vectors of disease organisms. Insects as pests of food, feed, and non-food products.

Farm Management	
General Description:	Organization and operation of farm management systems. Microeconomics as it relates to individual producers, small groups, or single commodities.
Includes, but not limited to:	Costs and returns of farm operations. Production economics. Administration/management of farm resources. Systems of farming: private, collective, state farms; contract, part-time, cooperative, corporation, and tenant farming (cash tenancy, share tenancy, etc.) Labor requirements as they relate to productivity of workers.
Notes:	Management of crops in the field is **Plant Production**. Management of livestock is **Animal Production**.

Feed Processing and Manufacture	
General Description:	Feed science and products in general and specifically.
Includes, but not limited to:	Feed processing and storage. Microbiology of feed processing; e.g., fermentation, enzymes, single cell protein, etc. Feed contamination and toxicology, including spoilage, adulteration. Feed composition.

Feed Processing and Manufacture	
	Grading, standards, and labeling of feeds. Public health as it is affected by contaminated feed, e.g., residues. Planning and development of the feed industry. Preservation and storage of processed feed. Feed processing equipment if it is concerned with the properties of raw materials or contamination.
Notes:	Legislation relating to feed grading, standards, and labeling is **Law**. Marketing and distribution of feed products is **Agricultural Economics**.

Food and Non-Food Processing and Manufacture (Except Feed)	
General Description:	Articles on agricultural products are taken only though the primary processing stages. Articles on manufacturing processes after primary off-farm processing are taken only when they are affected by properties of the raw materials or as they relate to consumer protection (standardization, inspection, quality control, contamination, etc.)
Includes, but not limited to:	Textiles from natural fibers through the spinning process, e.g., rot-proofing, waterproofing, fireproofing, etc. Further processing states are taken only when emphasis is on the properties of the natural fiber. Tobacco as a raw product or derivative but not cigar or cigarette manufacture unless emphasis is on the raw material. Natural rubber is taken through initial processing of the latex. Articles on further processing or on synthetic rubber taken only as they relate to the properties of the natural rubber. Food products taken through all stages of processing, but not in relation to the machinery, management and labor, or economics of their manufacture unless that aspect is concerned with properties of raw materials or contamination. Extracts from insects and plants but not from domestic animals

	Food and Non-Food Processing and Manufacture (Except Feed)
	(unless related to agricultural subject in other categories).
	Care, storage, refrigeration and sanitation procedures for food and non-food agricultural products.
	Food safety.
	Industrial utilization.
	Chemurgy, analysis and composition.
	Processing: preparation methods such as pasteurizing, curing, canning, dehydrating, freeze-drying, freezing, preserving, irradiation, etc.
	Food packaging.
	Home food and meal preparation, storage; and preservation.

Forestry	
General Description:	General aspects of forestry, including associations, history, education, social and economic aspects of forestry as a whole. Forest influences, Effects on water supply, climate, and health resulting from presence of forests. Shelterbelts and windbreaks. Watershed management. Forest fire research.
Includes, but not limited to:	Economics and management: business economics of domestic and foreign forestry; forest finance, costs and returns, valuation, statistics; administration, organization of forest enterprises; taxation, labor, regulation and legislation. Forest engineering, including construction costs and problems of maintaining public areas in National Forests; forest road construction and maintenance; forestry and silvicultural equipment; transport of forest products from the forest to the mill; site clearing, grading slope stability; avalanches in forest areas. Forest products: Properties of wood, composite and reconstituted wood, pulp and paper, chemicals and miscellaneous products derived from forest species. Processing of forest products when the raw material is involved, e.g., pulp and paper are taken through the pulping process but no paper processing except as affected by the properties of the wood or natural fiber. Harvesting: Logging and other forms of harvesting; primary processing and on-site storage of forest products. Land-use policy, including multiple use for maximum efficiency, management of recreational areas on forest lands, parks, grazing in National Forests; farm woodlands, private forests; conservation. Occupational health and safety. Silviculture: Silvicultural systems; natural and artificial regeneration, breeding, seed production; stand improvement; including Christmas trees and forest nurseries; controlled burning, general forest husbandry; afforestation; reforestation; silvicultural equipment and structures. Trade, marketing: transport of forest products to market, including railroads for specific transport of logs/lumber. Local, national, international trade/marketing. Wood technology: wood in all its aspects; identification, structure, chemical, mechanical and physical properties;

Forestry	
	cellulose and lignin research.
Notes:	Legislation relating to feed grading, standards, and labeling is **Law**. Marketing and distribution of feed products is **Agricultural Economics**.

Geology	
General Description:	For an article on geology to be considered in scope, there must a direct relation to agriculture, fisheries, or forestry
Includes, but not limited to:	Paleobotany. Paleoentomology. Fossilization of ancient forms of livestock.

Human Nutrition	
General description:	Attitudes (food habits, fads, customs) of man in relation to foods and feeding are in scope, individually and as they relate to populations.
Includes, but not limited to:	Diet and nutritional disorders of laboratory animals when the animal serves as a model for human application. Institutional preparation of food (food service), food service management and equipment. Dietetics, diet-related diseases, and diet therapy. Food allergies and eating disorders. Public health nutrition. Requirements, metabolism, and utilization of nutrients in the diet in health and disease. Research involving laboratory animals as models for human application.
Excludes:	Law as written in code books.

Hydrology	
General Description:	For a publication to be considered in scope there must be a direct relation to agriculture, fisheries, or forestry.
Includes, but not limited to:	Water supply, conservation, quality, and management practices. Snow surveys.

Hydrology
Design and methods of drainage, irrigation, desalinization. Flood control and forecasting. Groundwater prospecting. Water chemistry. Water conveyance and distribution.

Invertebrates (other than insects)	
Includes, but not limited to:	Articles on crustaceans (other than those included with insects) if the organisms are treated as food/feed or have other agricultural, fishery, or forestry implications. Annelida as they affect plants, livestock, or soil. Mollusca if the organism is treated as a food/feed or has other agricultural implications (e.g., snails, slugs). All invertebrates which are parasitic in or on domestic animals and/or plants.

Landscape	
General Description:	The complex of land forms of a region.
Includes, but not limited to:	Landscape management. Landscape and scenery preservation. Estate gardens.

Law	
General Description:	Laws, statutes, regulations as interpreted for agriculture, fisheries, or forestry
Includes, but not limited to:	Animal quarantine regulations. Breeder's rights. Customs regulations. Environmental laws and regulations. Import and export regulations. Legislative aspects of quality control: inspection, supervision, labeling, sanitary regulations. Registration of and patents for plant varieties, and animal breeds.
Excludes:	Law as written in code books.

Library Science	
General Description:	For an article on library science to be considered in scope there must be a direct relation to agriculture, fisheries, or forestry.
Includes, but not limited to:	Agricultural databases. Agricultural/rural libraries. Agricultural/rural library organizations.

Microorganisms, including Bacteria and Viruses	
General description:	Publications in these subject areas are selected on the basis of their clearly stated relation to agriculture, fisheries, or forestry.
Includes, but not limited to:	Pathogens of plants, insects, or livestock. use of bacteria, viruses, and microorganisms in biological control of insects, weeds, or disease. Symbiotic bacteria of plants. soil microbiology. Rumen microorganisms. Bacterial and viral contaminants of food or feed. bacteria used in processing foods or other agricultural products. Bacteria as food or feed (single-cell protein). bacteria as affected by pesticides or pollution from agricultural, fishery, or forestry sources.
Excludes:	Publications on taxonomy, physiology, morphology, and genetics of bacteria except for pathogens of plants, insects, or livestock. Photosynthetic bacteria if the publication is only on bacterial physiology. Production of antibiotics and other drugs by bacteria.

Natural History	
General description:	For a natural history publication to be considered in scope there must be direct relationship with agriculture, fisheries, or forestry.
Includes, but not limited to:	Ecology of plants and insects. Plant communities.

Plant Production - Plant Cultivation	
General Description:	Cultivation/growing of field, horticultural, and miscellaneous plants from propagation through harvesting for the production of food, feed, forage, fiber, including ornamentals and medicinal plants.
Includes, but not limited to:	General crop husbandry. Propagation: grafting, budding, transplanting, sowing, etc. Seed production: harvesting, cleaning, storage, cultivation seed trials. Care of plants: pruning, crown thinning, planting, cultivation under cover, etc. Control of plant growth: acceleration, forcing, retardation, inhibition, artificial promotion of flowering by chemical means, etc. Yields. Harvesting and handling of crops. Pasture and range management; grazing (as it relates to land areas, grasses, etc.) Hydroponics.
Notes:	Effects of feeding on livestock are indexed under **Animal Production**

Plant Production - Plant Science	
General Description:	Application/utilization of multi-disciplinary sciences, such as breeding, ecology, cytology nutrition, physiology, biochemistry, taxonomy, geography, etc., for improving and increasing the quality/yields of both wild and domestic plants.
Includes, but not limited to:	Plant breeding: strains and cultivars. Plant collection, selection, germplasm banks. Genetics, genetic evaluation, cytogenetics, variation. Breeding methods, techniques, and programs. Crossbreeding, hybridization, induced mutation. Anatomy, cytology, histology, morphology, physiology, biochemistry. Taxonomy: mechanisms underlying speciation and related processes, plant geography, floras, cytotaxonomy, chemotaxonomy, nomenclature. Wood structure. Paleobotany, fossil pollen.

Plant Production - Plant Science	
	Checklists of plants. Associations, history, education. Introduction of plants. Arboretums, herbariums, botanical gardens. Notable trees. Ethnobotany. Botanical explorations.

Plant Production - Yeasts	
Includes, but not limited to:	Yeasts as disease organisms (except human diseases). Yeasts grown for food/feed. Yeasts used in the production of food/feed. General works on yeast physiology, genetics, nutrition, biochemistry, cytology, etc. Yeasts as part of paleobotany. yeasts used in the industrial production of alcohol. Yeasts used in the biodegradation of agricultural wastes.
Excludes:	Human pathogens.

Plant Protection	
General Description:	Protection of terrestrial and aquatic plants, forest trees (and their products) from diseases, pests, weeds, and miscellaneous injuries.
Includes, but not limited to:	Diseases caused by fungi, bacteria (including mycoplasmas), viruses and viroids; biology of pathogenic organisms. Physiological disease and deficiency diseases. Insects, mites, and other arthropod pests directly injurious to plants or serving as vectors of plant pathogens; biology of insect pests. Nematodes injurious to plants or acting as vectors of plant pathogens; nematode biology. Animals (other than insects and nematodes) injurious to plants. Weeds and parasitic higher plants; occurrence, distribution, and biology of weeds; competition with economic crops. Injuries caused by atmospheric factors, fire, equipment, pollutants, pesticides, and other physical or non-biogenic agents. Prevention and control of diseases and pests by natural,

Plant Protection	
	chemical, cultural, biological or integrated methods. Plant protection materials, equipment, methods and programs for disease and pest control in general. Immunity, resistance to disease infection, pests and pests resistance to pesticides. Breeding plants for resistance to diseases and pests. Disease and pest surveys.
Notes:	Plant quarantine regulations are considered **Law.**

Physical Geography	
General Description:	For an article on physical geography to be considered in scope there must be a direct relation to agriculture, fisheries, or forestry.
Includes, but not limited to:	Agricultural use of land masses. Drainage if it affects cultivation or plant/animal/soil relationships. Ocean currents if it is clearly stated they affect food fish and/or agricultural production. Rural communities. Vegetation of an area.

Physics	
General Description:	For an article on physics to be considered in scope there must be a direct relation to agriculture, fisheries, or forestry.
Includes, but not limited to:	Nuclear magnetic resonance for agricultural studies. Remote sensing for tracking forestry conditions.

Physiology	
General Description:	For an article on physiology to be considered in scope there must be a direct relation to agriculture, fisheries, or forestry.
Includes, but not limited to:	Agriculturally significant organisms, such as plants, insects, food animals (including fishes), laboratory animals, metabolism of nutrients in man.

Pollution	
General Description:	Contamination of clean surface or ground water, air, or land areas with harmful materials. For an article to be considered in scope, there must be a direct relation to agriculture, fisheries, or forestry.
Includes, but not limited to:	Pollution from urban or industrial sources as it relates to degradation of agriculture, fishery, or forestry environments. Wildlife in relation to its being affected by pesticides or pollution from agricultural sources.

Public Health	
General Description:	Protection and improvement of community health when there is a direct relation with agriculture, fisheries, or forestry.
Includes, but not limited to:	Direct or indirect contact with toxic levels of pesticides by humans. Food contamination. Health problems related to agricultural, fishery, or forestry occupations or work and their community support systems. Meat inspection. Pollution in its many forms. Toxic effects on food plants and animals. Zoonoses.

Rural Sociology	
General Description:	Sociology and sociography of rural populations and institutions.
Includes, but not limited to:	Rural organizations and movements, leadership, farmer political power. Rural health, welfare conditions, institutions, and services. Rural community institutions/services and their policies, programs, planning. Rural-urban relations. Population migration to urban areas and from urban areas to rural areas. Social aspects of migratory and contract labor, sharecroppers,

Rural Sociology	
	etc. Standard of living. Rural industries and businesses, farming and other rural businesses. Impact of cultural, technological, and political changes and movements on rural life. Public utilities for rural areas, e.g., sanitary systems, water supply systems, transportation systems. Demography, social stratification.

Soil Science	
General Description:	Soil as a natural body and as an economic resource.
Includes, but not limited to:	Physics, biology, microbiology. Chemistry and mineralogy: leaching, soil testing, hydrogen-ion concentrations, chemical composition, analysis, experimental techniques and evaluation. Mechanics and structure: structural condition and stability, porosity, compaction, degradation of pesticides. Engineering. Classification and genesis. Surveying and mapping. Soil improvement materials, including commercial fertilizers, manures, industrial waste disposal on farm land, soil conditioners. Fertility: depletion, exhaustion, toxicity, salinity, desalination. Fertilizer industry: technology, statistics, prices, trade. Resources and management, including tillage, harrowing, non-tillage, rolling, plowing, mulching, fallowing; crop rotation, intercropping, catch cropping, dry farming, cultivation under irrigation. Erosion and land reclamation. Soil sterilization.

Transportation	
General Description:	For a publication to be considered in scope, there must be a direct relation to agriculture, fisheries, or forestry.
Includes, but not	Marketing of food/feed, other agricultural, fishery, or forestry

Transportation	
limited to:	products. Movement of livestock. Travel in rural areas.

Veterinary Medicine	
General Description:	Veterinary medicine in general, as a profession, societies, education, organizations, and services.
Includes, but not limited to:	Abnormal behavior (e.g., cannibalism, tail biting, cribbing, feather picking, windsucking, weaving). Allergies. Anesthesia. Animal health care programs for the farm. Animals as vectors of diseases. Castration. Deficiency diseases. Dehorning. Diagnostic techniques. Fractures, sprains. General animal health problems and quarantine. Infectious, parasitic, non-infectious diseases of animals and the biology of disease-causing organisms. Meat inspection. Miscellaneous injuries caused by physical agents (including radiation), non-biogenic, non-chemical injuries and their prevention. Surgery. Veterinary laboratory methods and equipment. Veterinary pharmacology, toxicology, and therapeutic methods. Veterinary public health. Zoonoses.
Excludes:	Comparative medicine. Experimental surgery. Human/animal bond. Human parasitology (except for zoonoses and diseases in which animals serve as vectors). Primatology.
Notes:	Legislative aspects of animal disease, meat inspection, quarantine is considered **Law**. Parasitology is an exception to the rule of selecting only

Veterinary Medicine	
	articles that pertain to agriculture, fisheries, and forestry. With this subject any animal parasites are indexed. provided they are natural to the animal under discussion, i.e., the animal does not merely serve as a model for human diseases study.

Veterinary Medicine-Laboratory Animals	
Includes, but not limited to:	Care, handling, and management of laboratory animals/colonies, (excluding primates), and their indigenous diseases of interest to veterinarians and agricultural research institutes.
Excludes:	Induced diseases of laboratory animals or other experimentation with them unless of interest to veterinary medicine or as related to agriculture, fisheries, or forestry.
Notes:	Indexers are reminded that laboratory animals are often used as models for human diseases and disorders.

Weather/Climate	
General Description:	Publications on weather/climate are taken if they treat weather/climate as it affects agriculture, fisheries, or forestry, e.g., agriculture in general, physiology of crops, culture of crops, animal production, and/or construction of animal housing.

Wildlife	
General Description:	For a publication on wildlife to be considered in scope, there must be a direct relation to agriculture, fisheries, or forestry.
Includes, but not limited to:	Competition for food resources with livestock and economic plants. Reservoirs of disease for livestock and economic plants. Wildlife if it is the desired target of pesticides used to increase agricultural, fishery or forestry production. Wildlife if it is the inadvertent target of toxic levels of pesticides used for agriculture, fisheries, or forestry. Wildlife if it is the unintentional recipient of toxic levels of pollution.

Wildlife	
	Wildlife management as it relates to disease, pollution, pesticides.

Zoology	
General Description:	For an article on zoology to be considered in scope, there must be a direct relation to agriculture, fisheries, or forestry.

Supplement C
Summary of Preferred Assignment of
Names for Organisms and Products
Diseases/Infections in Animals and Plants

Organism or Product	Taxonomic Name	Product Name
Plants and crops	yes	yes
Plant products (food/nonfood)		yes

Organism	Taxonomic name
Bacteria	yes
Protozoa	yes
Viruses	yes
Fungi	yes

Organism	Taxonomic Name	Common group name
Arthropoda	yes	yes
Other vertebrates	yes	yes
Fish	yes	yes
Amphibians	yes	yes
Reptiles	yes	yes
Mammals and birds (not livestock, pets, experimental	yes	yes

animals)		
Mammals and birds (as livestock, pets, experimental animals)		yes
Laboratory animals		yes

Organism	Animals	Plants
Disease/infection descriptor	yes	no
Appropriate descriptor from the "plant diseases and disorders" hierarchy	no	yes*
Appropriate descriptor from the "animal diseases" hierarchy	yes	no
Taxonomic name of infecting organism if known	yes	yes

* Several may apply to the same article

4) Index diseases/infections in animals with the appropriate descriptor for the disease and the pre-coordinated "animal diseases" heading.