



AUBURN UNIVERSITY

LIBRARIES

A Discovery of Trees: A Comparison and Evaluation of Five Web-Scale Discovery Tool Services

By:

Dana M. Caudle

Midge Coates

Cecilia M. Schmitz

With assistance from Nadine Ellero





Web-Scale Discovery Tool Services (DTSSs)

... promise a search experience that is:

- Fast: one box, one search
- Easy: faceting technology to narrow large search result sets
- Unified: all (or nearly all) a library system's owned and licensed resources
- Effective: proprietary algorithms for greater relevance in search results



Research Question

How well would these tools perform for discovering a set of known items deemed authoritative by a subject expert?

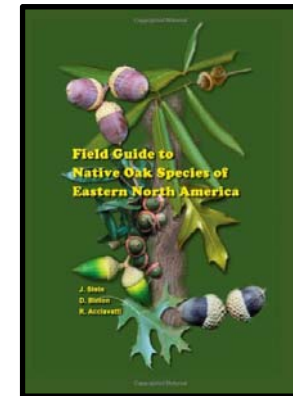
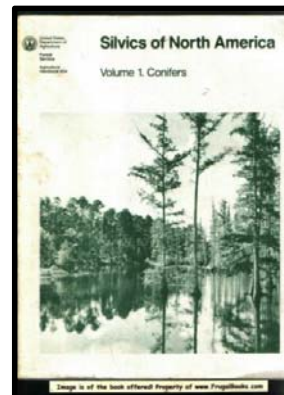
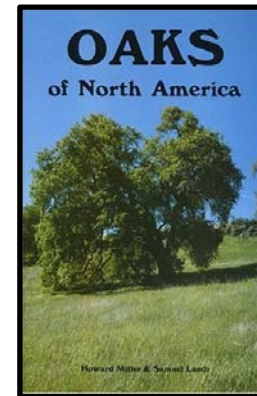
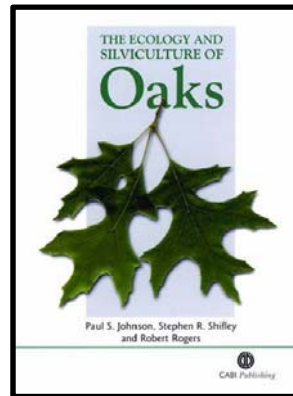
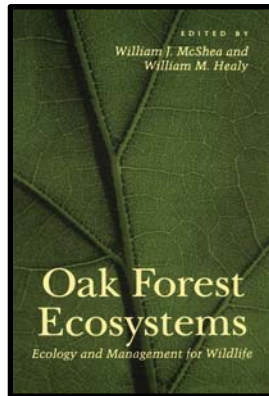
We consulted a local expert for a list of materials relevant to a specific research topic ...



**Effect of Tebuthiuron (herbicide) on Live Oaks
(*Quercus Virginiana*)**



Methodology: Monographs





Methodology: DTSs



Primo



Google scholar

Google books



Methodology: Institutions

- 2 institutions/implementations for each DTS
- Public access (no log-in) for search required
- Land grant institutions preferred
 - Similar collection materials
 - If no land grant institution available, then substitute ARL institution



Methodology: Searches

- OPAC known item searches = monograph titles, journal titles (not article titles)
- DTS known item searches = monograph titles, article titles
 - With/without quotation marks
- DTS keyword searches = pre-selected phrases
 - With/without quotation marks
 - With appropriate wild card character, as necessary
- For each search:
 - How many results were in the list?
 - Was our item on the list? (looking at first 2 pages only)
 - If yes, what position on the list?



DTS Results for Monographs

Known Item Searches

- Book title searches worked well for all DTSs.
- Quotation marks reduced the total number of results, but didn't affect an item's position on the list.

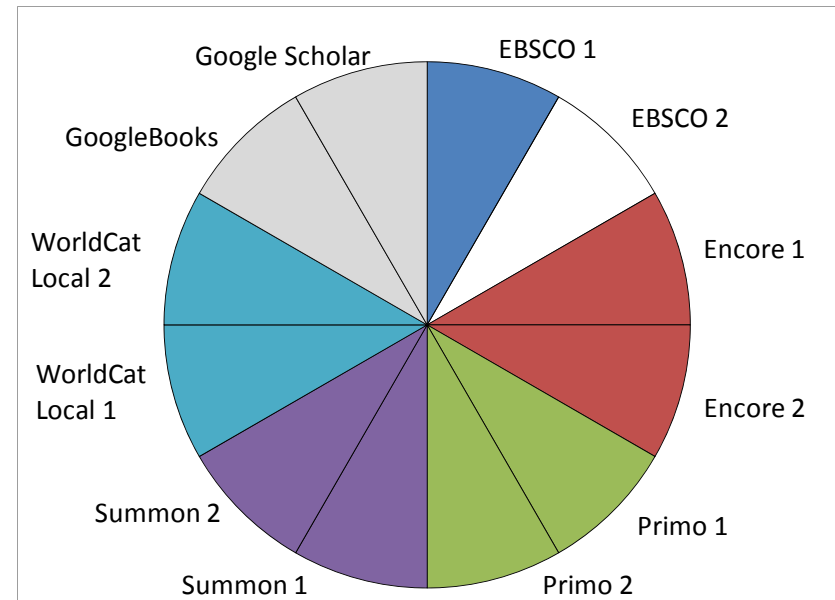
Keyword Searches

- Never more than 2 books found (out of 5)
- Not the same 2 books, either
- Non-relevant books at the top of the results list
- Hard to exclude these non-relevant books



Oak Forest Ecosystems

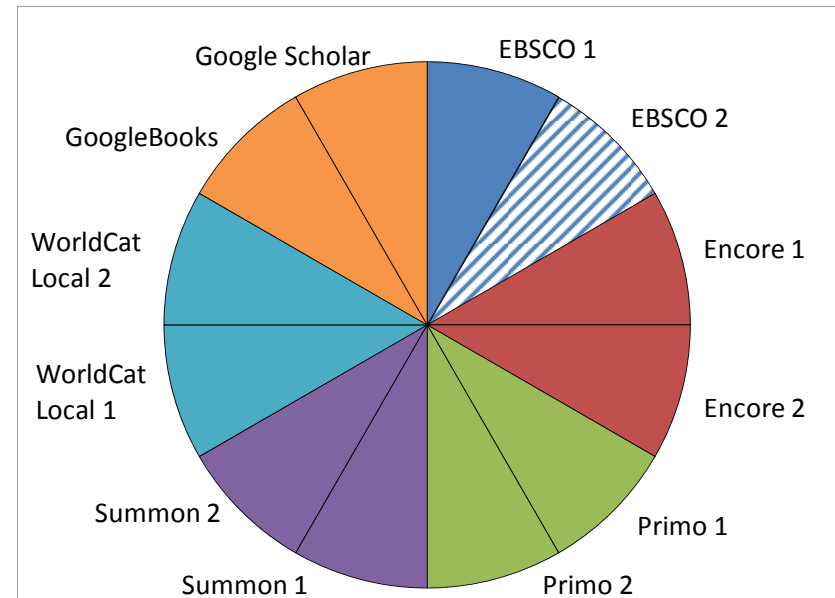
- OPAC—
 - known-item search: title





Oak Forest Ecosystems

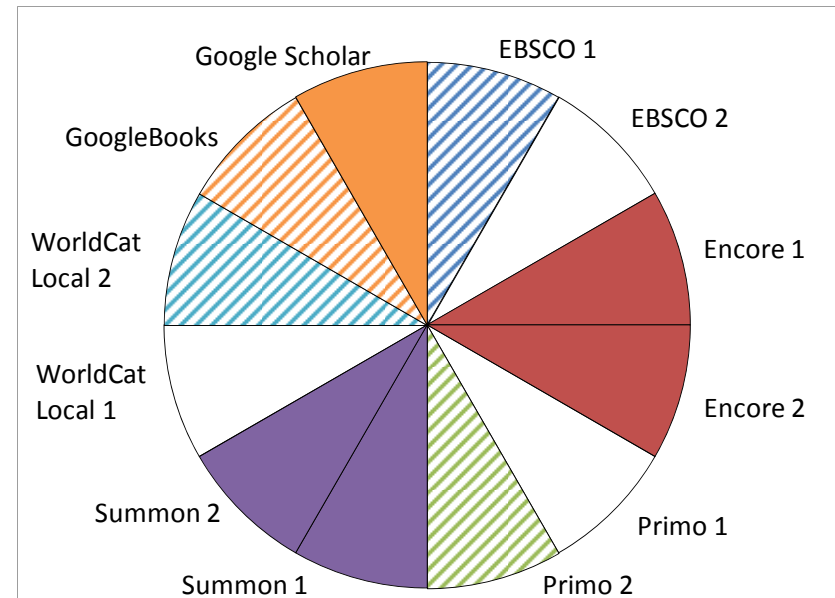
- OPAC—
 - known-item search: title
- DTS—
 - known-item search: title





Oak Forest Ecosystems

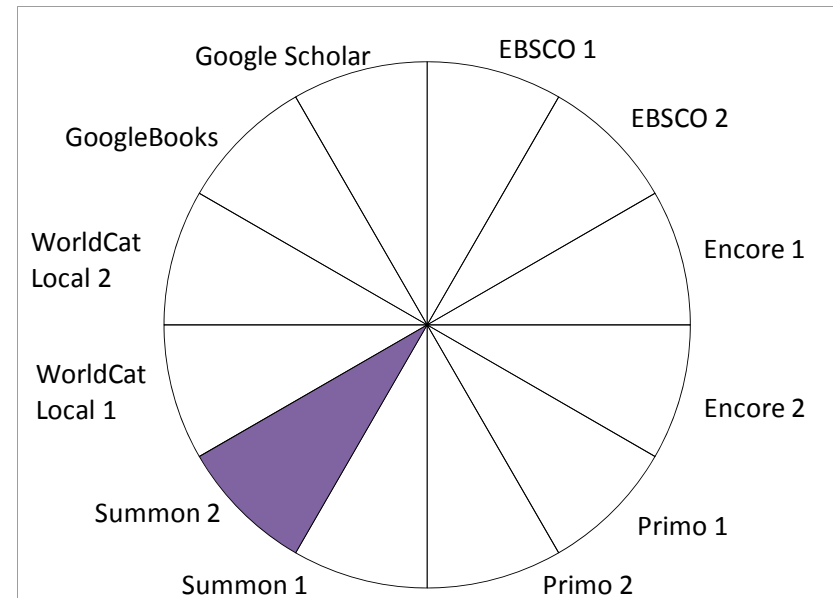
- OPAC—
 - known-item search: title
- DTS—
 - known-item search: title
 - keyword search: oak*





Oak Forest Ecosystems

- OPAC—
 - known-item search: title
- DTS—
 - known-item search: title
 - keyword search: oak*
 - keyword search: live oak*





DTS Results for Journal Articles

Known Item Searches

- Title searches less successful for articles than for monographs ...
 - Some results hidden from “guest” searchers
 - Some journals not indexed by DTS?

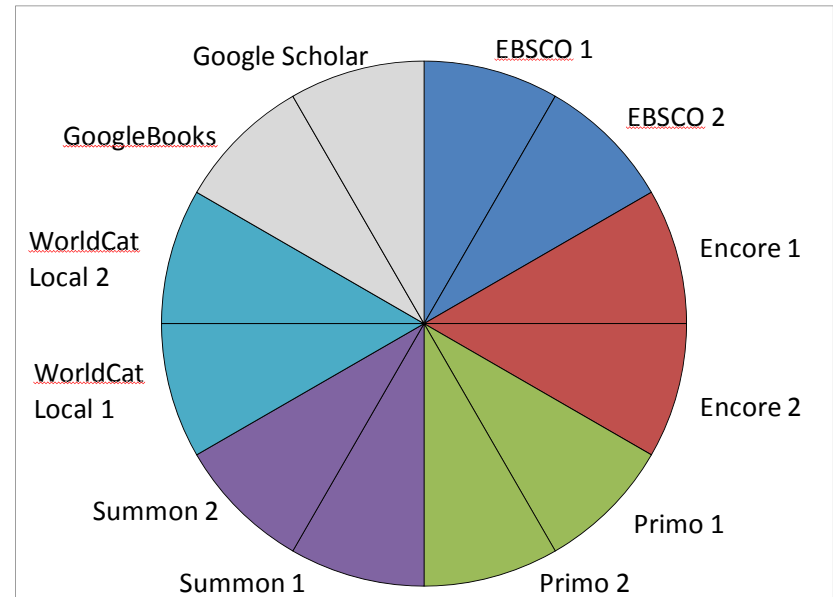
Keyword Searches

- Only one article found frequently (a few others found sporadically)
- Narrowing with subject facets
 - Reduced the results pool and moved articles higher up the results list
 - Did not reveal any additional articles from the target list
 - Many irrelevant articles remained after limiting by facets



“Control of live oak (*Quercus Virginiana*) and under-story vegetation with soil-applied herbicides” Weed Science

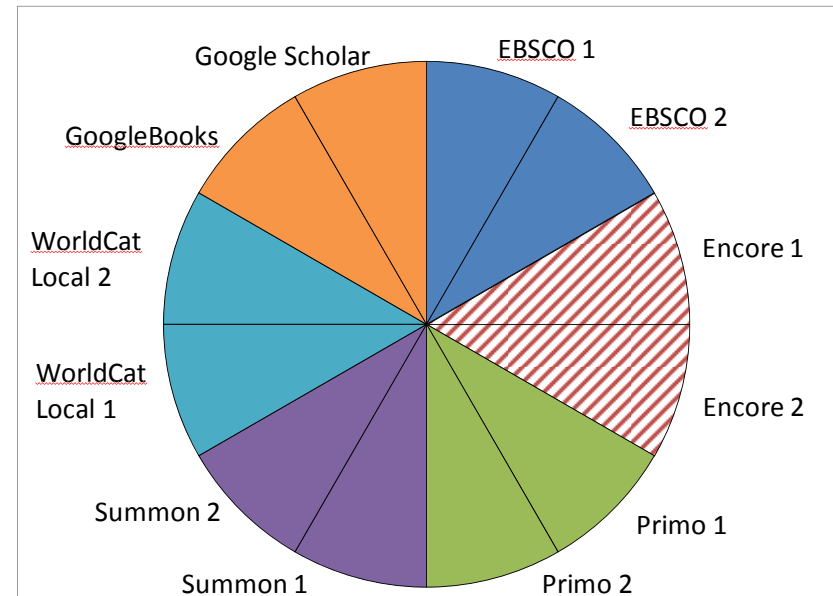
- OPAC—
 - known item search: journal title





“Control of live oak (*Quercus Virginiana*) and under-story vegetation with soil-applied herbicides” Weed Science

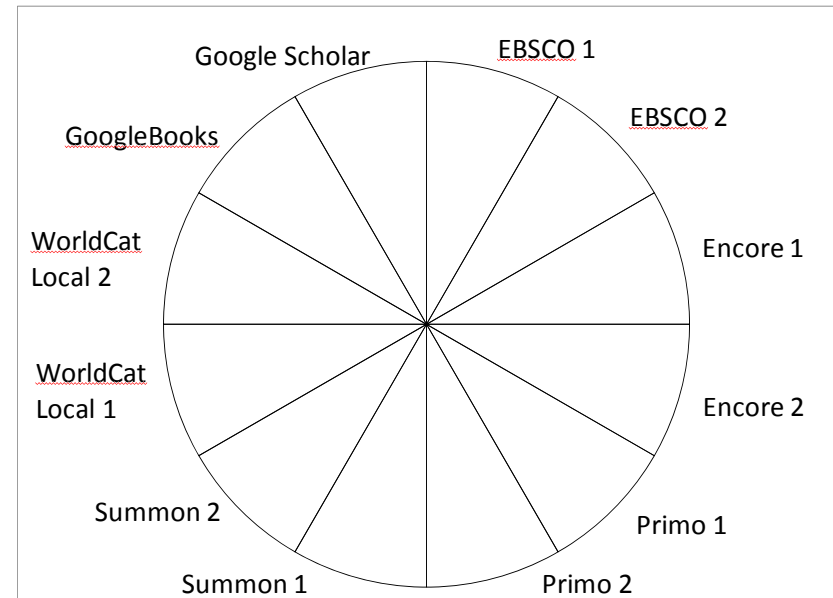
- OPAC—
 - known item search: journal title
- DTS—
 - known item search: article title





“Control of live oak (Quercus Virginiana) and under-story vegetation with soil-applied herbicides” Weed Science

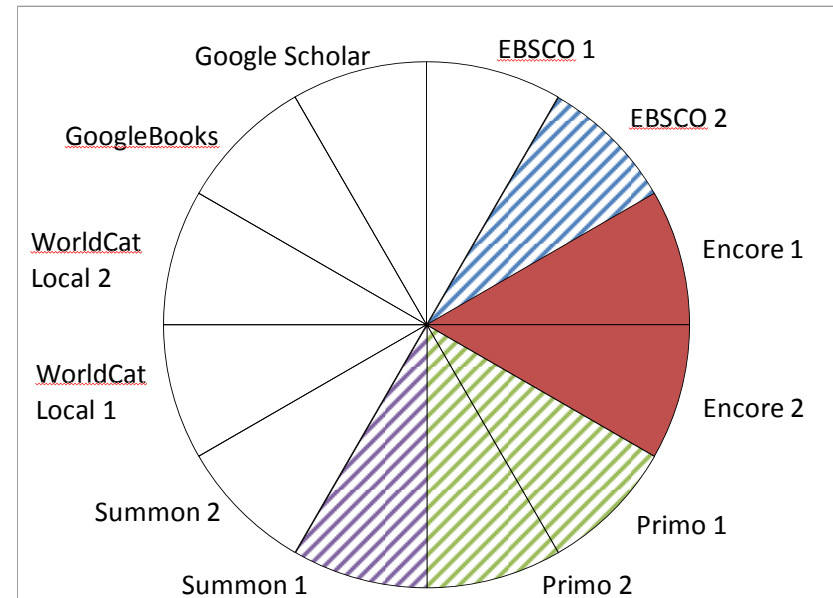
- OPAC—
 - known item search: journal title
- DTS—
 - known item search: article title
 - keyword search: oak*





“Control of live oak (Quercus Virginiana) and under-story vegetation with soil-applied herbicides” Weed Science

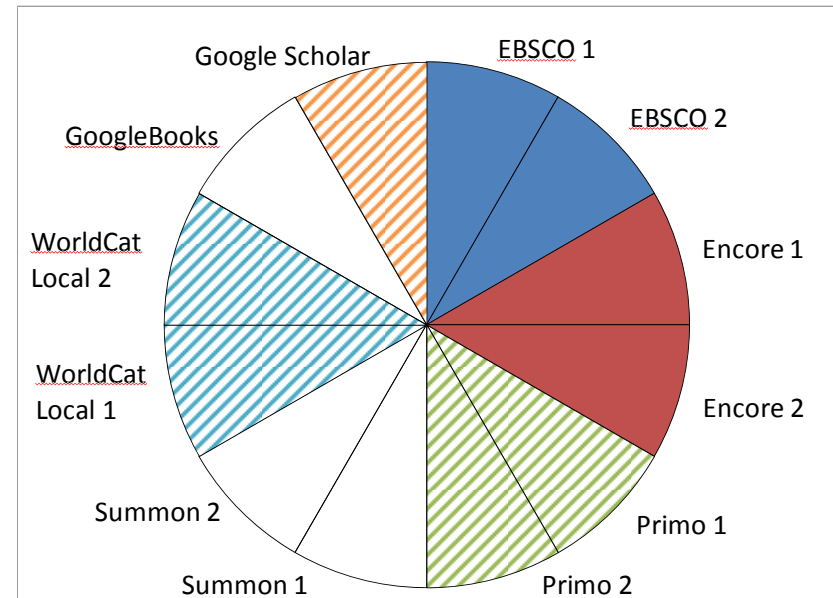
- OPAC—
 - known item search: journal title
- DTS—
 - known item search: article title
 - keyword search: oak*
 - keyword search: live oak*





“Control of live oak (Quercus Virginiana) and under-story vegetation with soil-applied herbicides” Weed Science

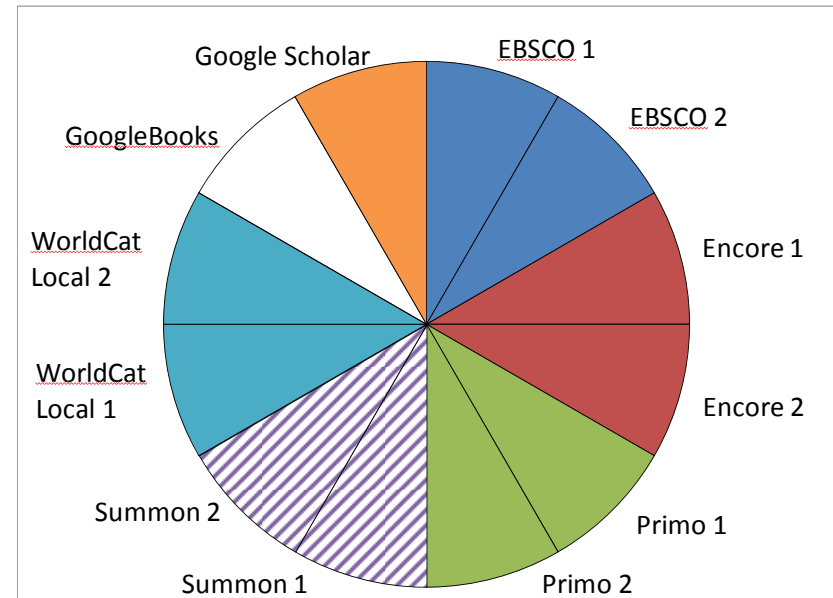
- OPAC—
 - known item search: journal title
- DTS—
 - known item search: article title
 - keyword search: oak*
 - keyword search: live oak*
 - keyword search: oak* + tebuthiuron





“Control of live oak (Quercus Virginiana) and under-story vegetation with soil-applied herbicides” Weed Science

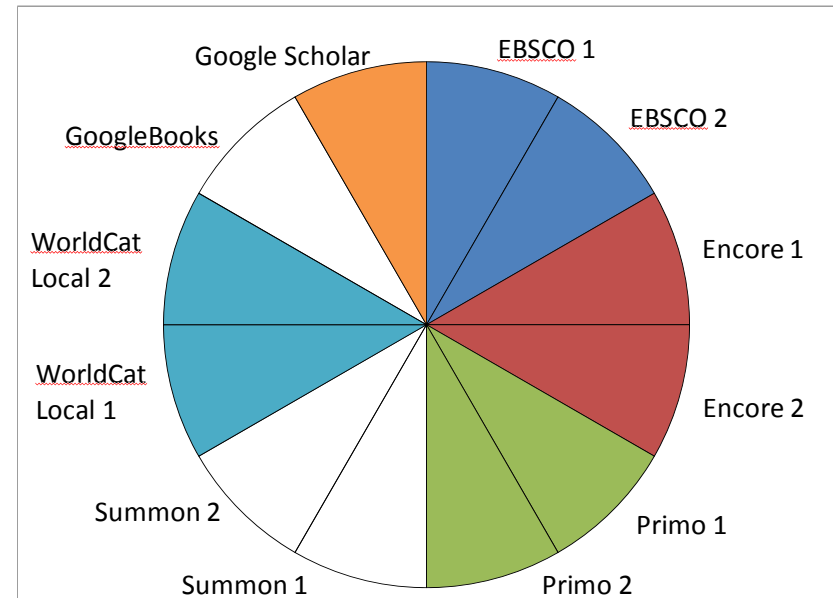
- OPAC—
 - known item search: journal title
- DTS—
 - known item search: article title
 - keyword search: oak*
 - keyword search: live oak*
 - keyword search: oak* + tebuthiuron
 - keyword search: live oak* + tebuthiuron





“Control of live oak (Quercus Virginiana) and under-story vegetation with soil-applied herbicides” Weed Science

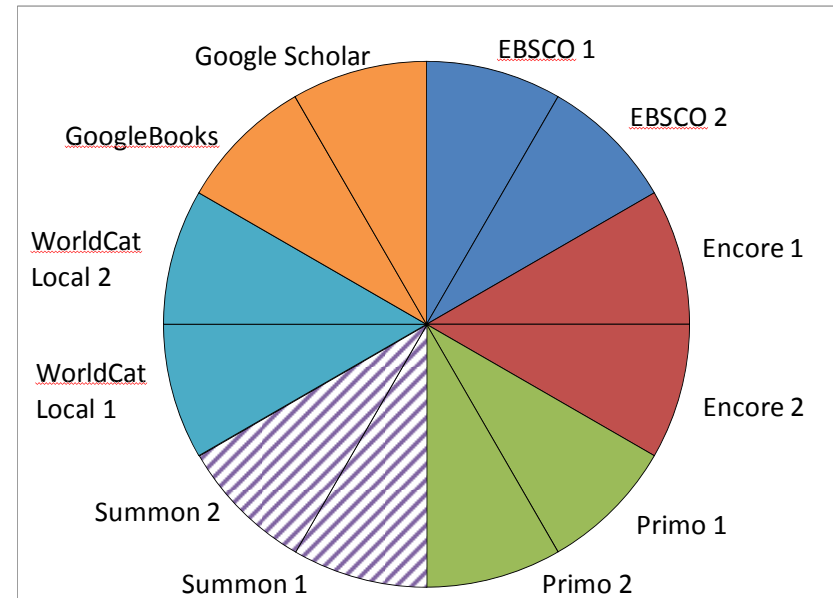
- OPAC—
 - known item search: journal title
- DTS—
 - known item search: article title
 - keyword search: oak*
 - keyword search: live oak*
 - keyword search: oak* + tebuthiuron
 - keyword search: live oak* + tebuthiuron
 - keyword search: oak* + tebuthiuron + quercus





“Control of live oak (Quercus Virginiana) and under-story vegetation with soil-applied herbicides” Weed Science

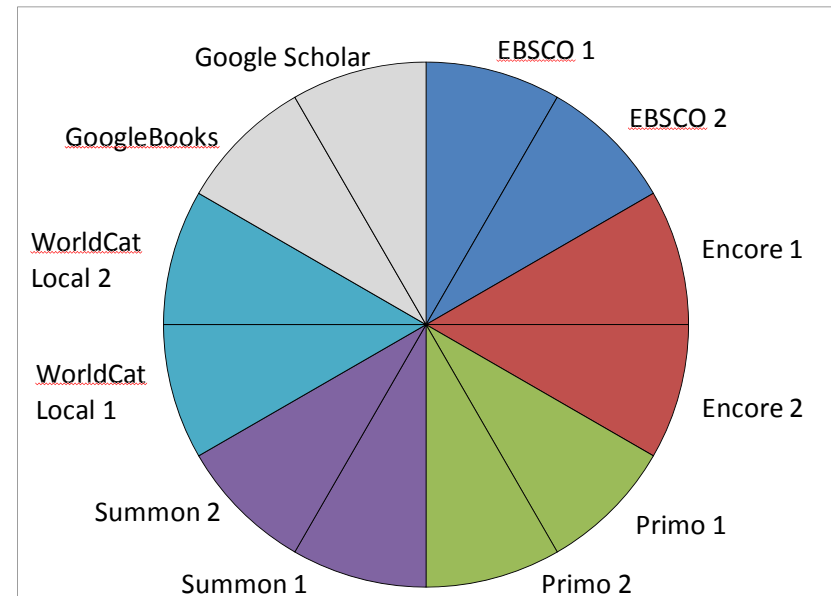
- OPAC—
 - known item search: journal title
- DTS—
 - known item search: article title
 - keyword search: oak*
 - keyword search: live oak*
 - keyword search: oak* + tebuthiuron
 - keyword search: live oak* + tebuthiuron
 - keyword search: oak* + tebuthiuron + quercus
 - keyword search: live oak* + tebuthiuron + quercus





“Vegetation management in the Cross Timbers: response of woody species to herbicides and burning” Weed Technology

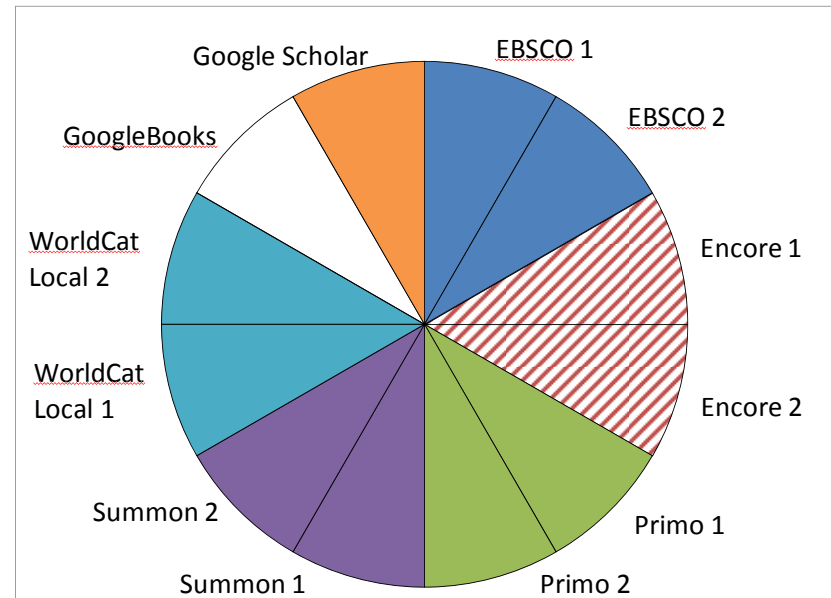
- OPAC—
 - known item search: journal title





“Vegetation management in the Cross Timbers: response of woody species to herbicides and burning” Weed Technology

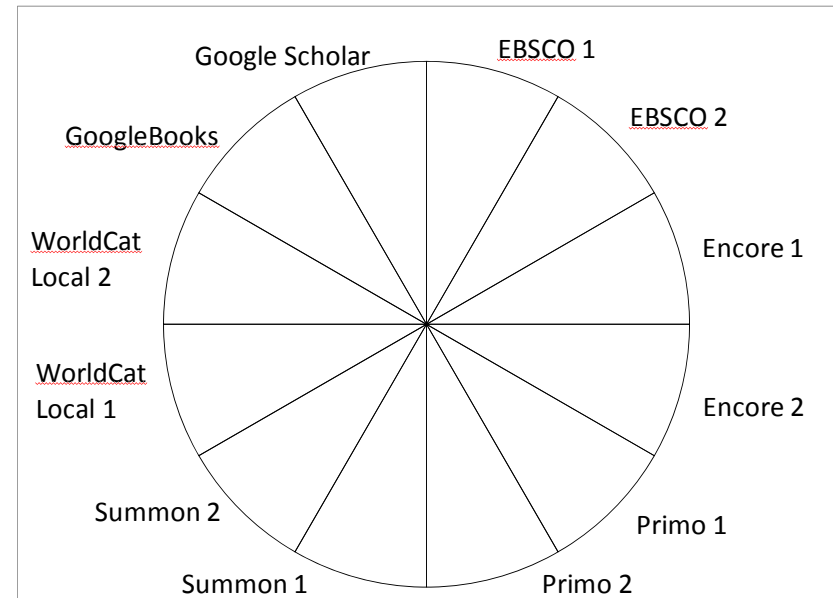
- OPAC—
 - known item search: journal title
- DTS—
 - known item search: article title





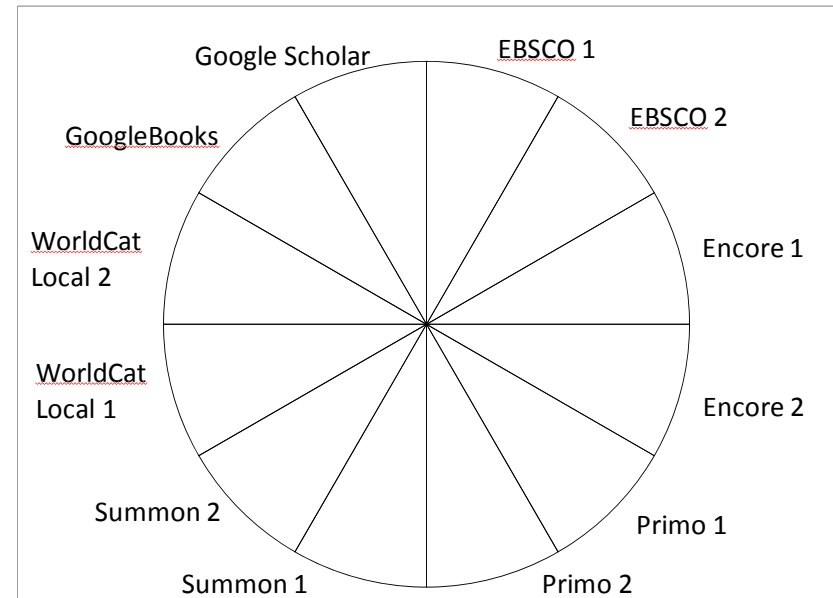
“Vegetation management in the Cross Timbers: response of woody species to herbicides and burning” Weed Technology

- OPAC—
 - known item search: journal title
- DTS—
 - known item search: article title
 - keyword search: oak*



“Vegetation management in the Cross Timbers: response of woody species to herbicides and burning” Weed Technology

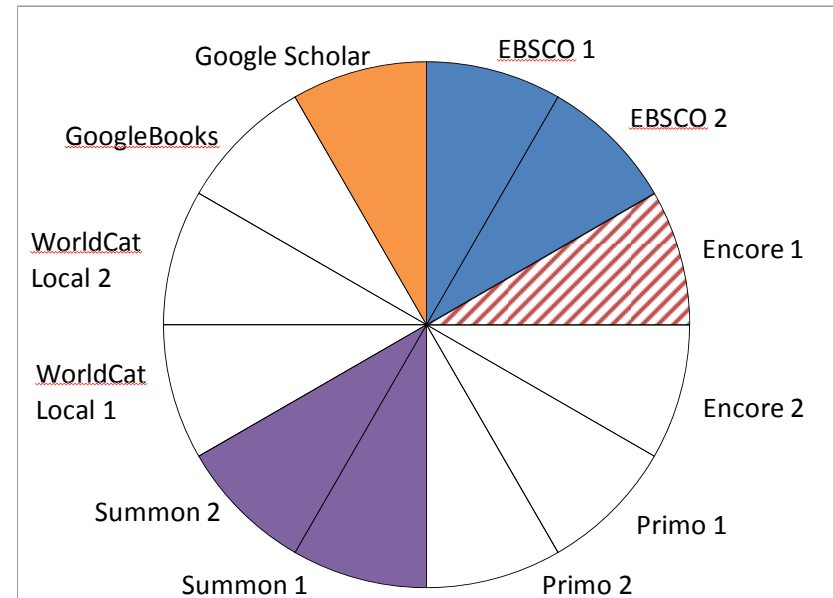
- OPAC—
 - known item search: journal title
- DTS—
 - known item search: article title
 - keyword search: oak*
 - keyword search: live oak*





“Vegetation management in the Cross Timbers: response of woody species to herbicides and burning” Weed Technology

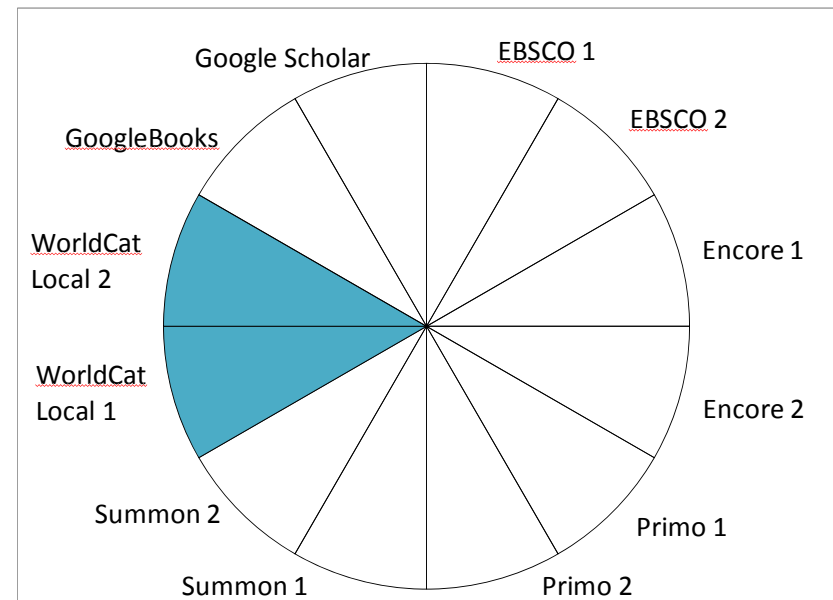
- OPAC—
 - known item search: journal title
- DTS—
 - known item search: article title
 - keyword search: oak*
 - keyword search: live oak*
 - keyword search: oak* + tebuthiuron





“Vegetation management in the Cross Timbers: response of woody species to herbicides and burning” Weed Technology

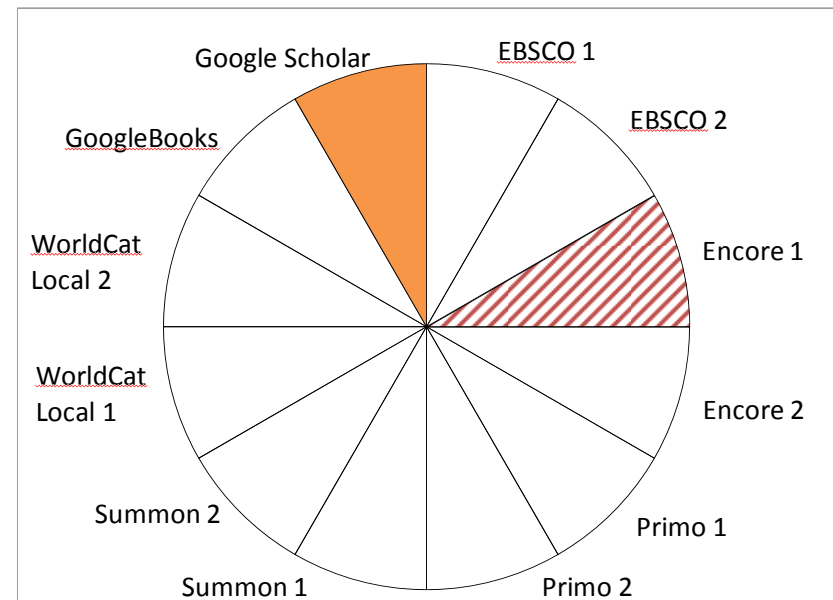
- OPAC—
 - known item search: journal title
- DTS—
 - known item search: article title
 - keyword search: oak*
 - keyword search: live oak*
 - keyword search: oak* + tebuthiuron
 - keyword search: live oak* + tebuthiuron





“Vegetation management in the Cross Timbers: response of woody species to herbicides and burning” Weed Technology

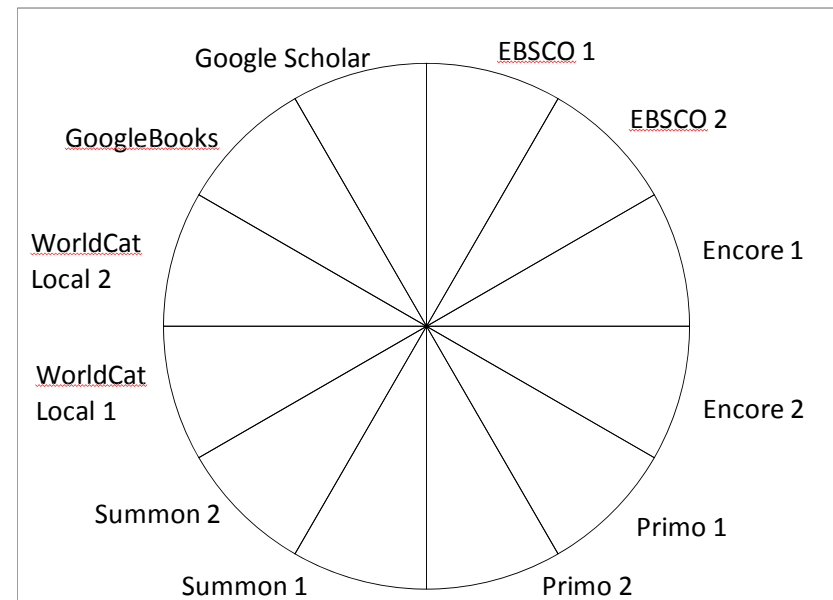
- OPAC—
 - known item search: journal title
- DTS—
 - known item search: article title
 - keyword search: oak*
 - keyword search: live oak*
 - keyword search: oak* + tebuthiuron
 - keyword search: live oak* + tebuthiuron
 - keyword search: oak* + tebuthiuron + quercus





“Vegetation management in the Cross Timbers: response of woody species to herbicides and burning” Weed Technology

- OPAC—
 - known item search: journal title
- DTS—
 - known item search: article title
 - keyword search: oak*
 - keyword search: live oak*
 - keyword search: oak* + tebuthiuron
 - keyword search: live oak* + tebuthiuron
 - keyword search: oak* + tebuthiuron + quercus
 - keyword search: live oak* + tebuthiuron + quercus





Discussion: Can We Improve DTS Searching?

Simple keyword searches don't work very well for disciplinary resources ...

Non-relevant materials (poetry, history, etc.) get in the way.

- Better facet narrowing
 - more categories
 - easier to find
- Disciplinary profile – users indicate what category of materials they are interested in (science, art, literature, etc.), and DTS uses this to pre-limit search results. (already in the works?)

Overall DTS Search Experience ...

- Fast ?

Yes.

- Easy ?

Easy to search; difficult to use facets effectively.

- Unified ?



Hmmm ... Not really, but that wasn't obvious.

- Effective ?

Yes, for known item searches; No, for keyword searches.



Overall DTS Search Experience ...

- Any overall winners or losers?

No, they were fairly equal in performance.

- Ease of use
- Search results



“Taking relevancy to the next level in sophistication will have to go far beyond the ways that keywords match the query”

(Breeding 2012a, 29)

Contact Information:

Dana M. Caudle

caudlda@auburn.edu

Midge Coates

coatemi@auburn.edu

Cecilia M. Schmitz

schmice@auburn.edu

