

## READABILITY LEVELS OF FLORIDA PESTICIDE EXAMS

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**Abstract.** The high failure rate on State mandated pesticide certification exams led to development of a series of exam prep classes. It also raised questions concerning the reading level of the exams themselves. Readability tests were conducted on 13 pesticide exams. Readability levels ranged from 10th grade to college graduate.

An apparent high rate of pesticide certification exam failure in Hillsborough County led to the analysis of existing test data for 1997-1998. The failure rate for this period was determined to be above 39%. The continuing high failure rate led to the development of a series of exam prep classes to remedy the situation. The teaching and subsequent revision of the series of exam prep classes led to the realization that the vocabulary used in the manuals and on the exams did not appear to match the vocabulary of the audience.

“Readability” is a term used to explain how accessible, or understandable, a piece of writing is to an audience (Words Work, 2000). Research into the concept of “readability” led to the discovery that most current word processors include software to test the readability of documents. Word processors include one or more readability formulas based primarily on the average number of words per sentence and the average number of syllables per word. The formula used for the following research is called the Flesch-Kincaid readability formula.

The average reading level [of Americans] is at the eighth-to ninth-grade level. About one in five read at the fifth-grade level and below. For older Americans (65 and over) and for inner-city minorities, almost two out of five read below the

fifth-grade level. The National Work Group on Literacy and Health recommends that writers aim for a fifth-grade level or lower (University of Utah Health Services Center).

### Methodology

To test the readability of pesticide exams, the following methodology was used: for each of 13 different exams, Question #1, #10, #20, etc., was chosen for testing. As a result, 10%-12% of each exam was included in the readability test regardless of the number of questions on each exam. Answers to the questions were multiple choice and not included in the readability test. The questions were typed into a word processor in paragraph form. The Flesch-Kincaid readability formula was then applied to the selection. The results are shown in Table 1.

### Conclusion

The reading level of all the pesticide exams ranged from 10th grade to college graduate level. This high readability level appears to be inappropriate to the audience and may contribute to the high failure rate of the pesticide exams. The high readability level may also require compensating action such as exam prep classes to “level the playing field” for the applicants. Using this information, the University of Florida, which is responsible for periodic revision of the pesticide manuals and exams, can revise their procedures to produce material with readability level more appropriate to the audience.

### Literature Cited

- WordsWork. 2000. Readability and Medical Writing. Words Work Inc. URL: <http://www.wordswork.com/index.html> [2000, April 2].  
University of Utah Health Services Center (No date). Literacy Facts-Did You Know? URL: <http://www.med.utah.edu/pated/authors/literacy.html> [2000, April 2].

Table 1. Pesticide exam readability results.

Specific Pesticide Exam & Typical Audience	Flesch-Kincaid Results	Equiv. Educational Level
Aerial	13.4	1.5 years college
Agriculture Row Crop	15	3 years college
Agriculture Tree Crop	12.4	Beginning college level
Anti-Fouling Paint (Marine)	11.5	11th grade
Aquatic (Public & Commercial)	15.4	3.5 years college
Core (All Applicators)	14.4	2.5 years college
Limited Commercial Maint (Commercial Landscapers)	12.8	1 year college
Limited Structural (In-house employees & School Custodians)	11.3	11th grade
Limited Lawn & Ornamental (In-house employees & School Custodians)	10.7	10th grade +
Ornamental & Turf (Golf Courses, Parks)	9.9	10th grade
Public Health (Mosquito Control)	11.4	11th grade
Private Applicator (Farmers, Wholesale Nursery)	13.9	2 years college
Right-of Way (Public Employees)	16	4 years college