Helpful Hints for Technical Writing

Be Careful with the Term "Result in"

The main purpose of technical writing is to convey information to the reader. Such writing should be direct, precise, and brief, and as specific as the writer's knowledge can allow it to be. Any terms that foster vagueness, imprecision, and wordiness should be avoided.

Scientific investigation commonly seeks to elucidate cause and effect relationships. It strives to explain how some result or reaction is the consequence of some action. The term "to result in" would seem to be made to order for describing such cause and effect relationships when writing reports of research results. In reality, the term causes vagueness, imprecision, ambiguity, and wordiness in the technical literature. It has become the over-used tool of the careless writer.

The term "result in" is like a black box that links cause and effect. Something happens whereby the effect is the result of the cause. But the reader doesn't know exactly what happened, because it is concealed in the black box.

In its simplest form, "to result in" is simply a drab verb whose object is a noun made from a powerful verb. The black box does not conceal anything, it is simply an impediment to clear and concise expression.

Example: When applied incorrectly, herbicides can result in crop injury. (9 words)

Improved: When applied incorrectly, herbicides can injure crops. (7 words)

The improved version is better because:

a. The force of the sentence is increased because the noun "injury" is changed to the verb "injure".

b. Without losing information, the number of words is reduced from nine to seven.

Sometimes the content of the black box is a bit more complex. The sentence may be technically correct, but vague.

Example: The application of DCPA resulted in the control of crabgrass. (10 words)

Improved structure, but technically incorrect: The application of DCPA controlled crabgrass. (6 words)

Improved and technically correct: DCPA controlled crabgrass. (3 words)

The improved sentence is better because:

a. Precision is increased because the actor (DCPA) and action (controlled crabgrass) are clearly stated and directly connected.

b. Vagueness is removed because the unnecessary and misleading word "application" is eliminated. (Application did not control the weed, the herbicide did.)

c. The force of the sentence is increased because "control" is changed from a noun to a verb.

d. Without losing information, the number of words is reduced from ten to three.

Another example: Dense foliage resulted in serious injury to the plants by mold. (11 words)

Improved structure, but technically incorrect: Dense foliage injured plants seriously by mold. (7 words)

Improved and correct: Mold injured plants seriously when foliage was dense. (8 words)

Sometimes an effect is clearly the consequence of a cause, but exactly what happened is not known.

Example (hypothetical data): Application of bromoxynil + 2,4-D to wheat at the 3-tiller stage resulted in a 20% increase in protein content of the grain. (23 words)

Protein content may have increased because bromoxynil or 2,4-D stimulated the plants, because a synergistic effect of the two herbicides stimulated the plants, because control of weeds allowed improved plant growth, or because of some other reason. The observation may be important enough that it should be published in a preliminary report, even though more research is needed to reveal the contents of the black box. In such cases, the use of "resulted in" may be justified. However, even in this case, the sentence can be improved if rewritten to avoid the use of "resulted in".

Improved: Protein content of grain increased 20% when bromoxynil + 2,4-D was applied to wheat at the 3-tiller stage. (19 words)

In some cases, the cause rather than the effect can be a noun formed from a verb. Such sentences can also be improved by rewriting to eliminate "result in".

Example: A rapid rise of warm air resulted in a storm. (10 words)

Improved: A storm developed when warm air rose rapidly. (8 words)

Most misused terms do have some appropriate use. Probably the term "result in" can be used effectively when:

a. Both the cause and effect are nouns not made from verbs;

b. A statement is desired in which the content of the black box need not be elaborated.

Example a: Unemployment results in discontentment.

Example b: Excess pressure may damage or break the grinding wheel and result in injury to the operator or bystander.

Nevertheless, in most cases where "result in" is found in the technical literature, the sentence could be made more precise, more concise, and more specific if rewritten to eliminate the term.

Remember:

"Result in" is a term
That makes writing less concise;
Can make it vague and wordy,
And its meaning imprecise.

J. H. Dawson, Weed Scientist, Prosser, WA 99350