

Ignoring some data may aid crop counts

Disregarding some data may actually help farmers and commodities brokers predict crop yields more accurately. A new study of Illinois corn suggests measures of soil moisture during key preharvest periods lead to better predictions of seasonal yields than do similar data representing the entire growing season.

Midseason estimates of final yields now rely on the most current value for the Palmer Index, a year-to-date soil-moisture measure. The Illinois study suggests predictions might improve if they instead depended on Palmer Index values recorded at the end of periods during which crops peak in sensitivity to moisture changes. A year of discussion with nine Illinois agriculture experts led the researchers to determine that, for corn, these critical phases are planting and anthesis/grain fill—when corn reproduces and individual kernels fill with edible starch. In Illinois, where the corn-growing season runs from mid-April through October, planting typically takes six weeks including all of May, and anthesis/grain fill usually lasts three or four weeks in July and August.

The study, led by Scott A. Isard of the University of Illinois at Urbana-Champaign and William E. Easterling at the Illinois State Water Survey, focused on corn yields from 1960 through 1983 in 12 counties. The researchers estimated known annual yields using end-of-season Palmer Index values and compared those results with estimates based on values from the end of the two critical periods. They found the latter method, which neglects several months' worth of data, more effective. They also discovered, to their surprise, that weather conditions during harvest "don't seem to play a major role in the seasonal [corn] yields," says Easterling, now at Resources for the Future, a Washington, D.C., research group.

Scheduled for publication early next year in the *JOURNAL OF CLIMATE*, the study's results show that the cumulative growing-season estimates accounted for about half the true fluctuation-from-normal of drought-year yields, while the new technique accounted for about 75 percent. "The remaining variation in yields," says Easterling, "is probably due to things other than weather, such as insects, diseases, fertilizers, pesticides and agronomic practices."

Easterling says complex computer models simulating crop growth eventually will replace Palmer Index methods. Meanwhile, Isard plans to apply his team's technique in estimating Illinois' yearly corn yields since 1983, seasons he says had "less stable weather" than those from 1960 through 1983. — C. Knox

Firming the figures on mental illness

Almost one-third of U.S. adults are likely to suffer from a mental illness or substance abuse or dependence sometime in their lives, according to what Lewis L. Judd, director of the National Institute of Mental Health (NIMH), calls "the most extensive epidemiological survey of mental illness in the history of our civilization."

"What this indicates is that these disorders are not those that affect someone else, but will affect almost every family and certainly every friendship in the United States," Judd says.

Until this new study, mental health professionals had no solid data on the nationwide prevalence of mental illness. Leaders of NIMH's Epidemiologic Catchment Area survey, covering five U.S. communities, say it is the first such study to use modern diagnostic techniques, weight raw figures with national averages and replicate data in more than one site.

The new report substantiates the study's 1984 preliminary results, based on 10,000 adults at three sites (SN: 10/6/84, p.212). With an additional 8,571 interviews, the new results also include one-month rates, which indicate current prevalence, minimize recall prob-

lems, provide "base rates" for follow-up interviews and allow for international comparisons, the researchers note in the November *ARCHIVES OF GENERAL PSYCHIATRY*.

They found that 15.4 percent of people surveyed suffered symptoms of a mental or substance-use disorder in the month before their questioning. Phobia was the single most common disorder, reported by 6.2 percent. Another 3.3 percent reported dysthymia (a mild depression), 2.8 percent reported alcohol abuse/dependence and 2.2 percent reported an episode of major depression. All other disorders occurred in less than 2 percent of the population. Researchers conducted the interviews between 1980 and 1984.

The study shows mental disorders are more common among people under age 45 and more common in women than in men. However, men were twice as likely as women to abuse drugs and five times as likely to abuse alcohol. In addition, antisocial personality disorder afflicted four times as many men as women, but more women had symptoms of depression, anxiety and somatization disorder, a form of hypochondria. — J. Wickelgren

AIDS toll underestimated in IV drug users

New York City's intravenous drug abusers are dying of AIDS-related illness at rates far exceeding the official AIDS death toll for that population group. "Official AIDS statistics greatly underestimate the amount of [AIDS]-related deaths among drug abusers; they are probably missing at least half," says Don C. Des Jarlais of the New York State Division of Substance Abuse Services.

Des Jarlais, Rand L. Stoneburner of the New York City Health Department and their colleagues note in the Nov. 11 *SCIENCE* that from 1982 to 1986, New York City recorded 1,197 official AIDS deaths among intravenous drug users. Their research, however, suggests that another 2,520 addicts died of AIDS-related illness during that same period.

Because of flaws in the AIDS surveillance system, health officials have "greatly underestimated" the impact of AIDS on minority communities where drug abuse is prevalent, Stoneburner says.

Public health specialists have long suspected a far higher number of AIDS-related deaths among addicts than those recorded by the government. Stoneburner and his colleagues investigated New York City's narcotics-related death rates and found sharp mortality increases starting in 1982. While death certificates attributed some of the deaths

to AIDS, they listed many more as due to illnesses such as tuberculosis, heart-valve infection or pneumonia, which are common in addicts but not usually fatal. The research shows the pneumonia deaths probably were not from *P. carinii*, a common AIDS infection.

The team found that many of those deaths appear to be the result of AIDS. A review of their medical records showed that many of the deceased drug users suffered symptoms of an early stage of AIDS, such as oral thrush, chronic diarrhea and weight loss. Stoneburner and his colleagues suspect the addicts had AIDS-damaged immune systems that left them vulnerable to infections. The deaths weren't classified as AIDS because they didn't meet the Centers for Disease Control's strict definition of the disease, which specifies opportunistic infections such as *P. carinii*.

Unreported AIDS-associated deaths seem most prevalent in one risk group: minority intravenous drug abusers, Stoneburner says. White drug users and homosexuals are dying of AIDS, but they don't usually die of the particular infections seen in the study. Stoneburner suspects impoverished minority drug users are more likely to be exposed to pathogens and less likely to receive prompt treatment. — K. Fackelmann