MOISTURE CONTENT OF CORN IN RELATION TO
RELATIVE HUMIDITY AND TEMPERATURE
OF THE ATMOSPHERE

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Moisture in shelled corn or corn on the ear has a tendency to be in
equilibrium with that of the air surrounding it. Seed corn is often
stored in the open air throughout the winter and is thus subjected to
different atmospheric relative humidities and temperatures which
affect the moisture content of the grain. In the following investiga-
tion an attempt was made to determine the percentage of moisture
that may be expected in corn at various temperatures and relative
humidities.

MATERIALS AND METHODS

Reid Yellow Dent corn grown in the fields of the Illinois Agricul-
tural Experiment Station was used. It was harvested in October,
1924, and stored in a room at a temperature of approximately 22°C.
until the following December. During this time the moisture con-
tent had been reduced to 11.0% (total weight basis). Samples of the
shelled corn weighing 110 grams were placed in wire baskets, which
were suspended for four weeks from hooks sealed to covers of 2-quart
fruit jars. Each jar contained 250 cc. of sulfuric acid of such concen-
trations that the resulting relative humidities of the atmosphere
above the solutions in the sealed jars ranged between approximately
0% to 100%. The necessary concentrations to be used were cal-
culated from Stevens (6), and the amounts of acid and water for
each jar were calculated from Atack (1). The calculation of adjust-
ment of specific gravities to 0°C. was made from Thorpe (7) and that
of the percentage of acid from Olson (5). The results obtained cor-
respond quite closely to those obtained by Coleman and Fellows (3)
who used the method described by Wilson (8).

At the close of the experiment a specific gravity test of the solutions
and a moisture test of the corn were made. The specific gravity of
the solutions was obtained from hydrometer readings and the moist-
ure content of corn was obtained by weighing approximately 20
grams of corn and drying it for ten days at 104°C. Percentage loss
in weight was based upon the original weight of the sample.

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