

A SHORT NOTE ON SUCTION DRYERS

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Many estates I have visited complain of failure to get the good results they expected on improving factory conditions. Near-by estates with similar or even indifferently equipped factories have been doing well for some reason or other; and no variation in manufacture seems to improve the quality of the tea, which often gives thin liquors, dull infusions and not much flavour. Most of these factories have suction dryers while the adjacent factories are fitted with pressure dryers.

Observations made on such dryers have given rather peculiar results, which are given for the benefit of readers, in spite of the fact that the records are not yet sufficient to be conclusive. The outstanding observation is that the dryer thermometers may show a temperature of 190-200°F and give one the impression that the firing is satisfactory, but when the temperature is taken below the bottom tray in the middle of the machine the temperature may be very much higher. In one case this temperature was 236°F when the dryer thermometers showed 200°F, and in another instance the temperature under the bottom tray was 230°F when the dryer thermometer showed 192°F. The exhaust temperature was 120-130°F and therefore satisfactory and the dryer thermometers when checked were correct. The teas turned out were not satisfactory.

The explanation of this discrepancy appears to be that in suction dryers the greatest pressure is in the middle, and that the fan tends to concentrate the air in the middle of the machine. This means that the heat supply is greatest to the middle of the machine and not to the sides. On the other hand the greatest loss of heat is at the sides so that the air has to be heated higher than necessary in order to produce the temperature required at the sides of the machine. The temperature recorded by thermometers on the side of a machine thus shows the temperature of the coolest air and not of the general conditions. The greatest discrepancy in temperature occurs when a current of cold air runs past the side of the dryer, especially when the withering fans are taking air from the drying room, but this may be remedied to a certain extent by partitioning the dryer stove from the drying room thus sheltering the drying machine from draught, and arranging for the cold air supply to the loft fans to be taken from some other source, or over the top of the machine. A rush of cold air past the sides of the dryers must be avoided, and thermometers should be placed so that they record the temperature under the middle centre of the bottom tray.

All leaks in suction dryers must be attended to, otherwise cold air will be sucked into the machine.