New flax variety
FIRE HAZARD FORECASTS
FOR FARMLANDS
New Weather Bureau Service

By J. HOGAN, Senior Forecasting Officer, Weather Bureau, Perth.

The ever-increasing destruction by grass and forest fires during the summer months serves to emphasise the fact that many people are still showing considerable apathy towards this serious danger to property and life. In an effort to stimulate interest in fire prevention and control the Rural Bush Fire Prevention Advisory Committee, towards the end of last summer, convened a meeting to which representatives from the Forestry, Railways and Meteorological Departments were invited. The outcome of this meeting was that the Weather Bureau agreed to institute a fire hazard forecasting network to cover most of the agricultural areas in the South-West of the State.

Up to this time the fire hazard forecasts had been prepared only for the forest areas, and for 16 years co-operation between the Forestry Department, at Dwellingup, and the Weather Bureau has proved highly successful in the prevention and control of fires. The Forestry Department supplies the Weather Bureau twice daily with readings of pressure, temperature, humidity, etc., and at 3 p.m. each day, the maximum fire hazard for the day as assessed by the Forestry officials at Dwellingup is phoned to the Duty Forecaster.

This maximum fire hazard is calculated by the “stick” method, which derives its name from the use of a small cylindrical piece of oven-dried wood which is representative of medium-sized forest fuel. The “stick” is openly exposed near the ground and is weighed at regular intervals.

Variation in the weight of the “stick” gives an indication of the moisture change in the litter on the ground, and this is used as a basis for calculation of fire hazards. Temperature and humidity are the main factors regulating the weight of the “stick”, increasing temperatures and decreasing humidities each tending towards higher hazards. The accurate forecasting of temperatures and humidity, therefore, plays an important part in the estimation of the hazard for the following day. In this respect consideration must be given to—

(a) the direction of wind—the backing of winds from east to north usually gives rise to higher temperatures;
(b) precipitation in the form of dew, drizzle or rain, each of which causes an increase in moisture in the grass or litter for extremely varied periods;
(c) the arrival of sea breezes or new air masses having increased moisture contents.

It will be noted that, so far, the strength of the wind has not been taken into account, the reason being that, in estimating the fire hazard, the degree of combustibility of the available fuel, whether grass, scrub or forest, is dependent mainly on temperatures and humidity. The chief function of the
May showing boundaries of pastoral districts.
wind is to pick up flaming debris and throw it ahead, and it becomes all-important once a fire has actually started. It also produces heating of fuel in advance of the fire by the laying over of flames, while the fire itself by its terrific up-draught increases the strength of the local wind at the fire.

A fire hazard and general weather forecast is issued daily at 4.15 p.m. to the Dwellingup Forestry Office during the summer months. On receipt of this information and with a knowledge of the forest condition during the day a fire hazard forecast is transmitted by radio to each of the various Divisional Fire Offices throughout the South-West of the State. These are located in the metropolitan area and at Mundaring, Jarrahdale, Harvey, Collie, Kirrup, Manjimup, Pemberton, Busselton and Margaret River.

The Divisional Officers in turn telephone the information to about 20 substations in the South-West and the 60 mobile field units are catered for by a special radio transmission from the Divisional Offices. Plans are drawn up for the next day's work and at 7.45 a.m. each day a special transmission from Dwellingup confirming or amending the previous day's forecast is transmitted to all stations, thus allowing the organisation to proceed as planned or be altered according to the forecast hazard.

**HAZARDS CLASSIFIED**

The minimum hazard is "low" summer and the range extends in increasing order of danger through "moderate, average, high, severe and dangerous." The hazard for any particular day is not only dependent on the conditions of temperature and humidity at the time but also on the cumulative effect of the condition on preceding days. A high temperature and low humidity on a day following rain will produce a hazard considerably lower than the same temperature and humidity on a day succeeding several hot and dry days.

A forecast of wind direction and force is issued with each fire hazard to enable the Forestry Department officials to take the necessary precautions should a fire break out. A fire burning with a N.E. wind develops a head fire moving towards the South-West. This is the most dangerous and rapidly moving section, and gangs and fire-fighting gear must be first concentrated to suppress this section.

The forecast of wind changes is also of the utmost importance to the fire fighter, and the arrival of a sea breeze will frequently change a comparatively quiet side fire into a new and dangerous head fire. If the firefighters are forewarned of the time of this wind change, prior action can be taken to increase the number of gangs on what is expected to be the new dangerous face. On days of "dangerous" fire hazard the Forestry Department has authority to stop the working of bush locomotives to prevent risk of fire from sparks.

**RAILWAY RISKS LESSENED**

Sparks from railway engines have in the past been responsible for many fires, and in an effort to combat this menace the Railway Department, in co-operation with the Weather Bureau, decided to set up a system whereby several selected stations throughout the agricultural districts are notified each morning of the expected fire hazard in the area.

This information together with the anticipated winds, is phoned to the Central Railway Station at 7 a.m. each day and disseminated through Railway communication channels to the various selected stations. On days of "severe" to "dangerous" hazard the local Station-master has authority to prevent the use of any engine which is suspected of faults likely to allow the discharge of sparks.

The Railway Department has recently issued a set of instructions to all officers concerning the care and maintenance of the spark arresting appliances, damper screens, brick arches, baffle plates, etc., on engines. A weekly certification
Map showing boundaries of agricultural districts for which forecasts are given.
that these are in perfect order is required and the condition of the spark arresting appliances is to be entered on the engineman's daily report sheet, and wherever an officer considers that a risk would be involved by working an engine through a dangerous section he is instructed to put back and wait until conditions are more favourable.

BROADCASTING TIMES

The fire hazard forecasts are broadcast from Monday to Friday over the National Stations at 6.30 a.m., 8.07 a.m., 5.11 p.m., 6.50 p.m., and 11.07 p.m.; on Saturdays, at 6.30 a.m., 8.07 a.m., 6.25 p.m. and 11.07 p.m.; and on Sundays, at 6.55 a.m., 8.50 a.m., 6.25 p.m. and 11.07 p.m.

It is hoped that by making this information available to the general public the otherwise inconsiderate or thoughtless person may become more fire-conscious with a consequent reduction in indiscriminate burning-off on days of "high" to "dangerous" hazards. It has been the practice in the past for many people to burn-off immediately the restrictions are lifted, irrespective of the degree of hazard, and this has been responsible for many of the more severe grass and forest fires.

NEW FLAX VARIETY

The Minister for Agriculture (Sir Charles Latham) announced recently that a new flax variety developed in this State had been accepted for registration and released for commercial cultivation.

The new variety named "Boyup" was the result of cross-breeding and selection work carried out by the Plant Breeding Section of the Department over a number of years. The initial selection was made in Departmental plots in the flax-growing areas, continued with at the Avondale Research Station and the final selection and testing was carried out at Boyup Brook, the centre of the flax industry in this State.

"Boyup" is a blue-flowered, early-maturing variety, the result of a natural cross between the locally selected "Wada" and the imported "Concurrent". Slightly taller-growing than "Wada" and possessing a stronger straw, it gives excellent yields of flax fibre.

"Boyup" possesses a higher degree of rust resistance than the other varieties. This was evident last season when crops of "Wada" and "Concurrent" growing alongside areas sown to "Boyup" were badly attacked, whereas the new variety was practically unaffected by flax rust.
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