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Technical and labour input in establishing ground advertising

Air traffic describe shapes and pictures recognisable from aeroplanes as ground advertising. PR agencies are introducing these forms of adverts, although such objects are so far very rare. Reports in the media suggest that the adverts reach large target groups. During 2000, the Bavarian State Institute for Agricultural Engineering Weihenstephan with the Jeschenko Medien Agentur Köln GmbH laid out a ground advertisement below the approach flightlines to Munich II airport and analysed the required technical and time input.

The technique for laying-out a ground advert can be divided into four operations: choosing a motif, measurements, laying-out and maintenance.

Choosing a motif

Special conditions have to be taken account of when choosing a motif. These include the wishes of the PR agency, possibility of colour presentation - also dependent on the vegetation present -, readability, and field size and shape. Parallel to this, trial areas are laid out for testing colour effect of different agricultural materials according to colour stability and weather. Specialist know-how from experts and officials also needs to be sought. It was decided to use a motif featuring a 200 m high pilsner glass with the inscription „Deutsches Bier“ laid-out over a 6 ha field of malting barley (*fig.1*). Presentation of the motif was four-colour (white, green, yellow, black). Background colour was supplied by the malting barley crop (green). The glass stem and the beer foam were coloured white with burnt lime. Barley straw from the previous year was applied on the field as the actual beer (yellow). The black soil served as contour lines and for the outline of an ear and the script. The colouring changed as the vegetation matured. The barley ripened and turned brownish, the barley straw representing the glass contents became weathered and darker.

Measurements

A scale drawing and CAD system was applied for measuring. For subsequent transfer of drawing onto field surface two different techniques were used. GPS (Trimble Ag 132) was applied for tracing the outline of the pilsner glass. Used for drawing the ear and the script was a tachymeter (Leica TCA 1101). Transferring layouts via GPS proved a very simple and rapid technique although measurement errors of up to 1 m had to be tolerated. This lack of precision can be seen, e.g., on the asymmetric form of the glass stem. Tachymeter plotting achieved high accuracy. Here, errors of maximum 10 cm were determined. Time requirement, however, was substantially higher.

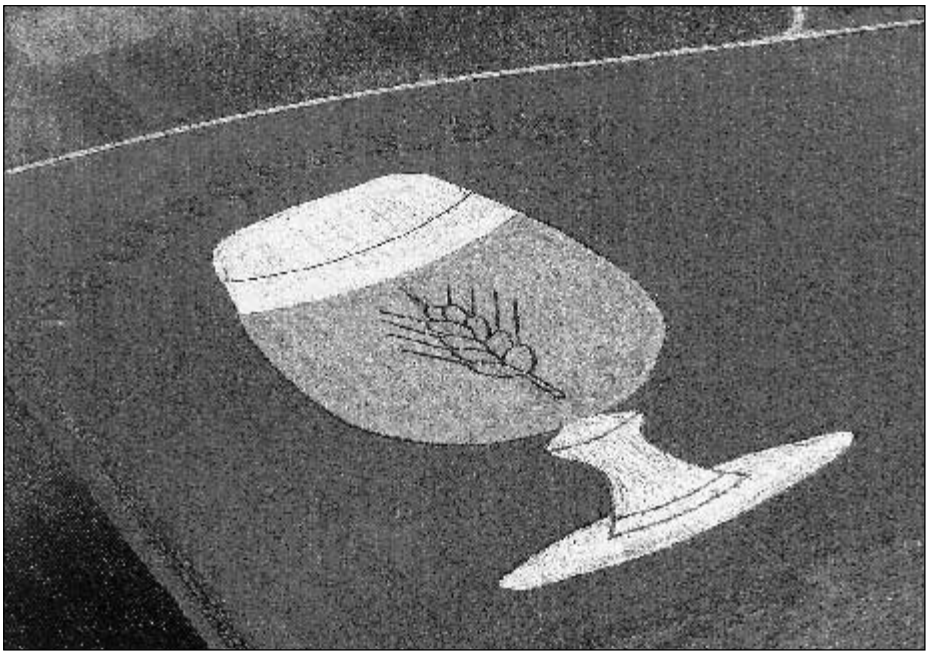

Fig 1: Soil characters May 2000, field size 6 ha, glas size 200 m, letter size 20 m

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Keywords

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Establishment

Originally malting barley was sown on the entire field. After plotting the motif, the glass form and the script were rotavated out. For large areas, the tractor-mounted rotovator was used. Narrow outlines and the script were tackled with hand rotavator. A broadcaster was used for applying the burnt lime (26 t) depicting the beer foam and glass stem. Application at the design edges and for narrow outlines was by hand. Spreading 8 t of straw (rectangular big bales) was by dung spreader before the ear form was plotted out. After plotting, the ear outline was raked free of straw by hand and subsequently hand rotavated.

Maintenance

The motif was to be kept in a neat condition up to harvest (end of July). Weeds had to be suppressed within the glass form and in the script. Because mechanical weeding within the glass form could have spoilt the straw and lime patterns, herbicide was used. The large areas were treated with tractor-mounted sprayer and a backpack sprayer was used for the edges. Theoretically the letter surfaces used in the script could have been rotavated. But because moving the rotavator from one letter to the other would have damaged the flowering barley the packpack sprayer and herbicide was chosen here too.

Work analysis

The working hours required for individual work steps were determined. As shown in *figure 2*, time requirements during preparation work such as travelling to the motif field, or collection of material and implements, were counted.

Determining motifs

The Bavarian State Institute for Agricultural Engineering required 62 working hours for the determination of a motif. These included 22 hours for internal and external discussions with those involved in the project (PR agency, farmer and colleagues) as well as 40 working hours required for the laying-out and evaluation of test plots.

Table 1: Machines and implements used

Tasks	Description
Measuring motif	CAD-work place GPS-antenna with pentop Tachymeter Wood pegs
Establishing motif	Tractor (40 kW) Tractor (110 kW) Broadcaster Dung spreader Rotavator (1.8 m) Hand rotavator
Maintenance	Tractor (40 kW) Mounted sprayer (400 l) Backpack sprayer

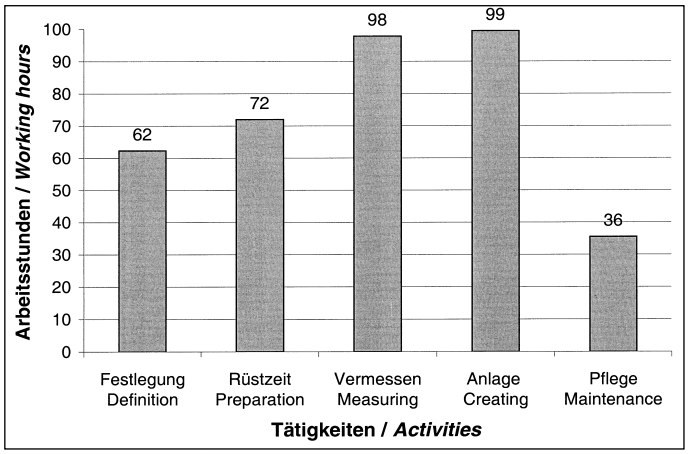

Fig 2: Working hours for various activities

Measuring

Measuring out the motif turned out to be very work-intensive needing 98 hours. 13 hours were required for the production of the scale CAD drawing. Plotting the beer glass outline with GPS was achieved in 19 hours. Extremely time consuming was the tachymeter plotting of the script letters and the grainear. This claimed 66 working hours.

Lay-out

For laying-out, 99 working hours were required. Here, drawing-in the letters was especially labour intensive. This took-up 33.5 hours because it was only possible to carry out the work with hand implements. Bringing out the 26 t of burnt lime also required a lot of time, mainly caused by the long tractor transport journeys involved. With the additional manual work on the edges of the out-lines, 31 hours were needed for the total lime work. Bringing out and applying the straw required 28.5 hours. The big square bales were broken and spread individually by the dung spreader working at low revolutions to minimise straw drift. Here too, manual spreading had to be carried out for precision at the edges. The laying out of the ear could be achieved very rapidly because this involved only the raking to the side of previously spread straw and then tilling the soil with a 1 m wide hand rotavator.

Maintenance

Two herbicide treatments were required for motif maintenance. For the larger areas a tractor-mounted sprayer could be used. On the edges, and inside the letters of the script, a packpack sprayer was used. Both actions required a total of 36 working hours.

Machinery and implement requirement

Emphasis was placed on using as much as possible machinery and implements already available in horticultural or agricultural businesses. This was possible, with the exception of the measuring equipment (CAD workplace, GPS antenna and tachymeter) which is seldom to be found on farms because of their high investment costs. The recommendation here is therefore to give the measuring tasks to a specialist. The machinery and implements used are listed in *table 1*.

Summary

It was shown that an advertising field could represent an interesting alternative income source. For measurements, specialist tools were required that were only seldom available on farms. The recommendation here is to give this task to specialists. Work input requirement can be high, where complicated motifs are involved. For example, the measuring-out of the ear in the beer glass and of the script required 66 working hours through the high precision required which needed a special measurement technique. The layout and maintenance can be carried out with standard horticulture and agriculture machinery.