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The Mushroom Journal

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FROM THE DIRECTOR'S DESK . . .



IGNORANCE IS NOT BLISS

Christmas is a pleasant but almost forgotten pleasure. The pre-holiday markets of good trade and firm prices are like the bubbles in the champagne. Flat!

Indeed the rot has set in. We still have to endure, in the future, the market gluts after holiday periods like Christmas and Easter. We will never again enjoy those euphoric days of yore when, for sometimes long periods, we enjoyed very good prices. Oh dear one could go on and on. Its just like having that hangover back again. Never mind, let's shut our eyes and ears to it and it might, like the hangover, go away.

I certainly think one can prophesy that, except in exceptional circumstances, short supply, high priced markets are gone forever. Certainly it is true, in terms of a sustained period, although it might exist on certain days but not as a semi-permanent feature. The high production levels and marketing mobility of the European countries has put an end to that. If any one market, or country, is short of supplies for any period longer than a couple of days, the gap can be filled by any one of a number of countries, both inside and outside the EEC, with choice quality mushrooms. Evidence of this is the growth of imports both canned and fresh over the last few years. The consumer is proving, as he did with the car industry, that he doesn't have to buy rubbish. He doesn't have any allegiance to a brand or even his own country's produce. What he wants is a good quality product, well packaged.

At the moment competition from across the water has the ability to remove from the fresh market anything other than the very best quality, by means of processing, in any of its many forms. Most of all it grows a mushroom which, from a quality and keeping standpoint, is second to none. Whilst it may be the view of a number of growers that our ability in this country to process mushrooms is limited because of the existing logistics, it cannot, and must not, be beyond the wit of man to match quality in all its aspects head on and meet competition from whatever source.

Incidentally, we cannot talk about quality of the produce without mentioning the shameful quality of the packaging used for the vast majority of our production. Even our best quality suffers from the treatment it receives from what can often only be described as pathetic packaging into which it is placed and expected to travel long distances to markets. We don't send bottles of wine to market wrapped only in paper bags. Why then send our mushrooms to market in packaging which in many cases is totally inadequate for the task?

Mushrooms are sent to this country because someone sees a market opportunity. If we wish to stop, or limit these opportunities, we must see that the market for quality mushrooms is supplied by our own growers. If we don't, then we can't blame anyone but ourselves. The lessons are before us.

Ignore them at your peril.

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Articles submitted for inclusion in the Journal are always welcome. Whilst the Editor cannot undertake to publish all the copy received, submissions will be acknowledged. Originals, wherever possible, will be returned to the contributor, who will also be notified as to if and when the article will appear.

No responsibility can be accepted by the Editor, the Editorial Board, or the Mushroom Growers' Association for statements made or views expressed in this Journal, or for any advertisements included.

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MGA AFFAIRS

New Members

New members this month include, from the overseas category, **Lars Stridsberg** from Sweden and **Dr W. Raymer** from the USA. The UK new members are, growers, **Dawnfresh Mushrooms**, **Llyncllys Farms**, **D. K. Sillis**, **Holm Park Mushrooms** and **Border Mushrooms**. Welcome to you all.

Cook's Corner

After last month's appetizing main course dish, February's recipe — sent to us by Vera Gowers of Buckingham Mushrooms, in Chesham — is for a rich and tasty starter.

Oeuf Chiminee

Serves 6:

6 eggs

200g (8oz) open mushrooms, chopped

2 small onions, chopped

50g (2oz) butter

Pepper and salt

Lemon juice

Melt butter gently in a heavy saucepan. Cook the chopped onions until

soft. Add the chopped mushrooms, peppers, salt and lemon juice. Hard boil the eggs, peel and cut in halves. Take out the yolks being careful to keep the whites in shape. Mash the egg yolks together with the mushroom mixture until thoroughly mixed. Arrange the white cases in a shallow oven-proof dish, close together to add support, and fill the white cases with the mushroom mixture — heaped up and rounded. Cover with a good béchamel sauce and place in an oven to brown. Sprinkle with cheese before browning if preferred. Serve with thin, crisp, toast fingers.

DIARY DATES

1984

February 21–23. BGLA Conference, Harrogate.

March 20. MGA AGM, Manor Hotel, Meriden.

April 10–13. British Mycological Society. Developmental biology of Agarics. Manchester University.

May 10, 11. Dutch Open Days, Horst.

September 26–29. MGA Annual Conference, Grosvenor Hotel, Chester.

October 23–25. Int. Symposium on substrates for *Pleurotus* sp. Duna, Budapest.

ANNUAL GENERAL MEETING

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The Grower and the Law

by Jim Mitchell

ACAS

I am a career Civil Servant, or, at least a Civil Servant. I think it is necessary to give you that note of explanation because I propose to start my talk with a fairy-tale which coming from any other source might surprise you.

Once upon a time, when a grower decided he'd got to the point where he wanted some assistance he could do several things. He could write out a little card and put it on the gate or on his door and it could say 'Help wanted'. It could even say 'Boy wanted' or 'Woman wanted' and if he did that, then the only label he would have on him was 'the grower'. I don't like to think what label would be attached these days. And when he'd engaged this person, just a shake of the hand perhaps, or a word would suffice. At the end of the week, that person would have surrendered two cards, one was a National Health card and one was an Unemployment card. So at the end of the week, our grower went to the Post Office, bought a couple of stamps, stuck them on the card, gave the chap the rest of the money and that really was it. Except, that if the employee didn't measure up to his requirements he'd say 'sorry old son'. From the time that the party and the grower agreed that they were going to set up a relationship, a contract of employment existed and still exists. The contract doesn't have to be in writing, seldom is in writing, it is what the lawyers would call 'implicit'.

What we are going to do is to talk about employment law. As I said, in the example, common law applied and there was a contract between you. In common law, again in lawyer's language, it was what was, and is, called the Master/Servant Relationship. Similarly there were things like the Truck Acts. Truck Acts said that at the end of the week if he pleased you and satisfied you and kept his part of the contract, then you had to pay him in cash. You could smother him in compost if you wanted to, but you couldn't pay him in it, neither could you pay him in mushrooms. They do tell me though that there is a glimmer of hope that the Truck Acts are likely to

be repealed and whether that will change the situation for you I don't know, but they will probably still insist on cash or credit. So there we are, that is the situation as it was.

Now at the time I wrote the notes that I am using today, I said that there were twenty-nine statutes which affect employment and I've had to add a couple since then. The two that I've added, one's in force and the other isn't, are the Social Security Housing Benefit Act, which brought in SSP and your need to juggle with statutory sick pay and sick pay under the Agriculture Wages Scheme. The other one is looming and is an extension to the Equal Pay Act, which should be law on 1st January 1984 and will bring the Equal Pay Legislation in the UK in line with that of the EEC. The Equal Pay Act provides for equal pay for equal work or equal pay for like work. From 1st January Equal Pay will apply for work of equal value, and there's a can of worms for you. Let's talk about the Employment Law from the point of view of the life history of an employee.

You decide you need one. As a matter of common sense I suggest that before you decide you need one, write out a complete job description. Set out all the tasks, then analyse the situation to see if you can re-distribute them and



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maybe decide you don't need anyone extra after all. This is a very useful and sensible management discipline, to start off by writing a job description of the person you want to employ. It will clear your own mind and certainly make any interviewing you do more effective. You advertise for one, and immediately you do that you've got to think in terms of the Sex Discrimination Act and the Race Relations Act. Your advertisement must be worded in such a way that it doesn't indicate any discrimination on the grounds of sex, race or creed.

The person turns up, starts with you, then within twelve weeks the Employment Protection Conciliation Act says that you have to give them a written statement which must set out the main terms and conditions, but which is not a contract. A contract, if it is to be a valid one, must contain all the written and unwritten rules — it's a virtual impossibility. The importance of it is that if you give somebody a full contract, then really you can only fairly dismiss them for some contractual breach. So, if you are in an engineering business and you take on a centre lathe turner for example, and the Chairman of the group comes round and the centre lathe turner has been out to lunch and had too much beer, and comes back and kicks in the door panel of the Chairman's Rolls, then you are probably going to fire him. It would be a very sensible thing to do if you want to keep on reasonable terms with the Chairman. Point is, if you've given him a written statement that doesn't include the fact that 'thou shalt not kick in the door panel of the Chairman's Rolls', it isn't a breach of contract. It doesn't say you can't fire him but you've made a rod for your own back. So a written statement is a written statement, it isn't a contract of service. As soon as they start work, you and they are responsible for them working in safe working conditions, and if you don't think they are, read up on the Health and Safety At Work Act because they are entitled to the right to safe working conditions.

The first right of an employer, manager or grower is enshrined in common law and it's very, very simple. It's the right to manage and I interpret that, in a reasonable common sense way, as a right to communicate. Don't let any shop steward tell you that you can't communicate with your workers. The right to instruct and to train and to counsel; the right to organize them and the right within the framework of the law and with any

procedure that you have agreed, to discipline them. That is your right. Together with that right, goes duties. Together with the employees rights, go duties. Your duties as employers are to fulfil your part of the employment contract. (Keep the Chairman's Rolls out of the way.)

In dealing with any matter that has to do with employment you need to have put together an employment policy. You don't have to put it in writing but do clear your mind as to just how you are going to treat people in a variety of circumstances and in doing so, you need to be very, very careful to be both impartial and consistent. There is nothing that breaks down good discipline and order in an organization more than either favouritism, which very seldom occurs in practice, or the perception of favouritism, which very often occurs. In other words, they think that you favour some people at the expense of others. So you've got to really lean over backwards to be both impartial and consistent.

When you are dealing with disciplinary matters, I've three pieces of advice. Take your time, think before you act, record everything you do, even if it's only in a desk diary and, when you have a chance, consult. Consult with us, consult with other managers, other growers, it never does any harm to ask for advice. You can weigh up the advice and accept it, or reject it, according to judgement.

Employees have the right to an itemized pay statement, which has to include a record of all deductions. They have certain rights within the Agriculture Wages Act to statutory holidays, to sick pay (and sick pay under the Agriculture Wages Scheme has to be reconciled with statutory sick pay). It's quite complex but it does warrant close study because you have the opportunity under statutory sick pay to claw back a certain amount of money from your National Insurance Contributions to the Revenue.

The itemized statement. There is a right to time off for public duties if, among your recruits, you have a JP, prison visitor or councillor. They have a right to time off to participate with Trade Union activities if, and only if, they belong to a Trade Union which you recognize and recognition means that you have procedural agreements with them, to some extent, for the purpose of collective bargaining. Trade Union officers, if you employ any, have a right to paid time off to take part in Trade Union training for the purpose of making



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them more efficient in their job. If you must have a Shop Steward, an efficient Shop Steward is less of a menace to you than is an inefficient one.

They have a right to maternity leave and to reinstatement. There might be a temptation at the time to extend this but don't extend because you will be creating a precedent. If you have to engage a replacement it is fair dismissal to dismiss the replacement when they come back. But make it very clear, in writing, to the replacement, the nature of the contract, and the nature of the employment, that it is temporary in those particular circumstances. They have a right not to be discriminated against because of Trade Union membership and activities or because of race or because of sex. They have a right to notice on termination. Someone who works for you for four weeks, or more, has a right to a week's notice. If they work for two years or more that week is extended to two weeks; three years and so on. Twelve years, twelve weeks and it doesn't extend beyond twelve weeks. You can pay them in lieu of notice but they have a statutory right to that. They have a right to guaranteed payment, very often forgotten, if you have to regrettably go on to short time. Then you have certain guarantee payments, in practice, it's up to five days pay in any one period of three months, so that's one of the snags of going on short pay, the savings are not immediate, as it were. They have a right of you, if they, haven't resigned; if you terminate them, they have a right to a written reason. You don't have to give it them unless they apply but if they do apply, then you must give them a written reason for their termination. If they are under notice of termination, they have a right for time off, within reason, to look for other jobs, or to arrange training.

If their employer becomes insolvent, they have rights to outstanding pay, they are preferential creditors. If there are no funds when an enterprise is wound up, then the Department of Employment will eventually pay their wages. So their right to pay in insolvency is absolute, and they also have a right to redundancy payment which right is accrued after two years' service.

I'd like to deal with the question of fair and unfair dismissal and here I would refer you to a Department of Employment free booklet, called the *Law on Unfair dismissal — guidance for small firms*, by Joan Henderson (1982). I refer it to you for two reasons. First it is written in intelligible

English, it's full of common sense and is easy to follow.

Secondly, it contains a list of addresses and telephone numbers of ACAS regional offices, at each of which we maintain a service which will give you written or telephonic advice in reply to your enquiry. At our office in Bristol we deal with some four hundred telephone enquiries a week and they are very useful. They don't confer the ACAS seal of approval on any action you might take, but they certainly tell you the pros and cons of taking any drastic disciplinary action, and for the cost of the telephone call, I think it worthwhile to do this. If the matter is something that you are reluctant to discuss over the telephone, then we will certainly come and discuss it with you.

Now a little on fair and unfair dismissal. My first point of advice, whatever you do, record it, whether it's a written warning, whether it's a counselling or whatever. If you see Bill Jones and give him a right rollocking about so and so, then just jot the fact down. So much more effective than to say to Bill 'on 14th April I had the occasion to tell you what I thought of you because you did so and so'. So much more effective than saying 'I spoke to you about that before sometime or another, it was last Spring'. If you say 14th April it carries a certain conviction about it and if at sometime or another you have to stand up and say it in front of an Industrial Tribunal, it is even more convincing. So do keep a record of everything that relates to your employees and particularly anything that has to do with counselling or disciplinary action, because at some stage or another, counselling can shade-in the disciplinary action.

There are five reasons which justify dismissal. The first is misconduct. If it is grave enough, then misconduct justifies summary dismissal; summary dismissal means just what it says and in those circumstances, statutorily you can waive, or put aside, the statutory right and dismiss without notice. But if you decide the summary dismissal is appropriate and he's got ten children, don't take pity on him and give him a week's notice, because if the thing is called in to question legally, later on you will have set up a sort of paradox. Summary dismissal means what it is and you can still summarily dismiss for an offence which is sufficiently grave. And before somebody asks me how do I know whether it is sufficiently grave, it's your gut reaction, it's reaction that says, I can't have him or her on the premises for one moment

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But before you do all these things, before you discipline for misconduct, just make sure he or she knew they were committing an offence. Make sure they were told that they shouldn't do something, make sure that it is something so outrageous that common sense dictates it. If there are rules which govern their conduct, make sure that their attention has been directed to them, you should rub their nose in them the first day there but if you don't, make sure that it has been done. Make sure to find out whether they've offended before, whether they've been warned before. Make sure, above all, no matter how furious you are, they have a chance to explain. Now that's most important, because dismissal must not only be fair but in the manner of dismissal must be fair as well. So make sure they have a chance to explain and finally make sure that there is some way in which they can appeal. If you can't stand the sight of them they can submit an appeal in writing, give them some sort of way to appeal.

The second reason for fair dismissal is the inability to do the job. Here again you have to ask yourself, has training been adequate? Has counselling been adequate? And has the selection been adequate? You've got to ask yourself, is he or she in the right job, can they be transferred? And have you warned them of the inadequacy? Not much good saying to somebody after twelve months 'look you're not up to the job, you'll have to go', he says 'Look Governor, you've never said a word to me before'. Well if you didn't, it's unfair dismissal, no matter how hopeless they are, they've got to be told.

The next reason for fair dismissal is redundancy. Obviously if their job is surplus to requirements, then it's the job you consider, not the person. Then the job holder is redundant but be careful that your selection from among your people for those to be made redundant is logical and free from prejudice. If there is a Trade Union, there is statute that says you have to bring them into consultation before you make the final decision. It doesn't mean to say that you can't do it. There are legal reasons which make dismissal fair. A driver, for example, whose lost his licence, doesn't do anything else, well you can't employ him as a

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driver, otherwise you are conniving with him breaking the law, so if you dismiss him, that is fair.

And the fifth reason for fair dismissal is some other substantial reason. Now what's that. All kinds of things.

Some of the examples I have noted down, difficult relations with others, where you recruit a person and the others, for some reason or another, won't work with him. If this is a reasonable attitude, then you've got to come to terms with it, making all efforts to sort it out. But if you can't, then you know that this person is unacceptable to the work group, then you've probably got to dismiss. A difficult one.

Another reason is if the contract changes, you change the terms of the contract, say you make it full time not part-time, well that can be fair but if the worker doesn't accept it, he still can apply to a Tribunal that he was constructively dismissed. So that is a bit of a grey area, but if he won't accept it and is dismissed, then that's fair dismissal but again it is a very, very delicate one and I would suggest that you'd do well to ask advice from ourselves, the NFU or some other organization. We do our best to brief the NFU, the NFU do their best to brief us.

If someone gave false details on an application form, claimed some qualification that was necessary and you found out they didn't have, then there again you have a reason for fair dismissal.

Criminal offences don't, of themselves, necessarily justify dismissal. Depends on the nature of the offence and here we have an odd situation that's crept up in case law over the years where someone has been dismissed because the employer alleges that they've stolen something. In the process, the employer puts the matter in the hands of the police, the police soon investigate, decide to prosecute, the employee is dismissed and after several weeks delay comes up before the beak and is dismissed without a stain on his character. In other words, he gets away with it and is found not guilty.

Question. Does your dismissal then become unfair?

Answer, No.

If you conducted your investigation as well as you could and made a sensible decision based on the facts that were available to you and bear in mind that, unlike the police, you can't investigate quite as fully, and in the same atmosphere,

generally speaking, when it comes to comparing your investigation with a court hearing you can't compel evidence on oath. You must do the best you can with what's available, and if you've done the best you can and dismissed and the person is later found not guilty, then case law established over the years, says that you were quite right and the dismissal stands.

If you have a Union closed shop, a Union membership agreement, then if you're going to dismiss because a union member has fallen out with the Union and left the Union, then I think definitely we would want to hear from you, right away, before you make a decision. It is an extremely difficult case, it is affected by the Employment Acts of '80 and '82, probably by Trade Union Labour Relations Act, if you are wrong, the wronged person can make an application in the Tribunal against both you and the Trade Union. The award the Tribunal can make is quite extensive. In that particular case don't do anything, it happens every now and again, usually it's a personality thing, a Union member falls out with the Shop Steward or the Convenor and says 'blow the Union'. He tears up his Union card and you've got an agreement with the Union, that you'll only employ Union members. Puts you in an awfully difficult situation.

Mr Mitchell then took questions from the floor:

Q. Does the employee give the employer notice?

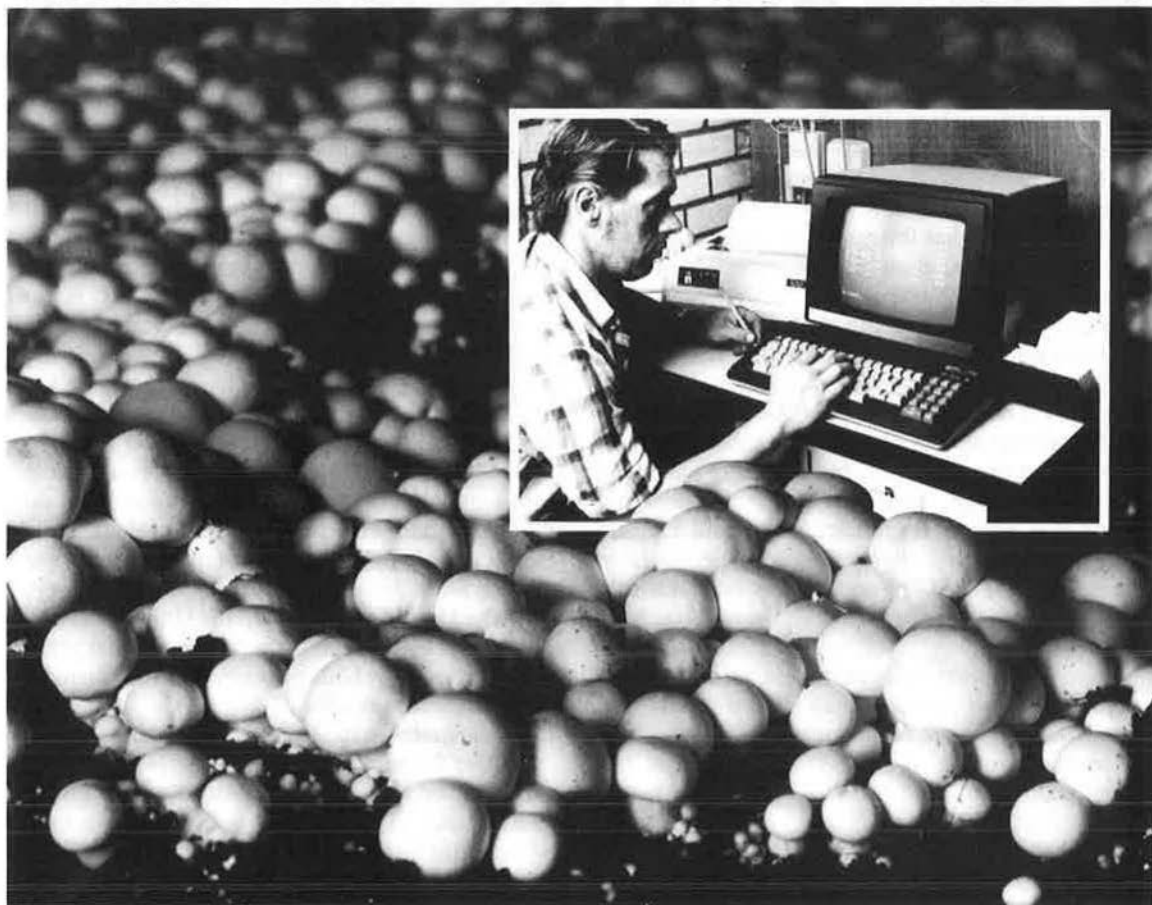
A. Yes, by law, every employee has to give a week's notice. The difficulty is that you can only insist on that through the Civil Courts and really in practice, it is, seldom worth it. Or I can imagine in certain very key jobs if the employee didn't give you that week's notice and left you in a situation where considerable damage could be caused, then it would be open for you to sue that person, not only for not giving a week's notice, but the ensuing damage.

Q. Surely an employee has to be with you for at least a year before he can be unfairly dismissed?

A. Yes, that's right, except that if you dismiss him for what's known as an inadmissible reason on grounds of race, sex or Union prejudice. Then there is no serious qualification but you are quite right yes, which brings me to another piece of useful advice I should've given you.

Whenever you engage anyone, make a note eleven months hence to really think in terms of whether you want to keep them or not because you can get rid of them with a lot less trouble within the

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first twelve months than you can afterwards. The period is extended to two years for very small firms.

Q. *You suggested that before anyone is dismissed it might pay to send them home for a time. In that case, are they on paid suspension and that it's only when you summarily dismiss that they lose the right to further payment?*

A. That is very much up to you. It's up to you what you establish by way of disciplinary rules. If you want, you can allow, as one of the penalties which is available to you, suspension without pay. If you do that I would suggest that you specify a maximum time. Don't make a decision that is going to terminate a relationship in the heat of the moment.

Q. *If an employee is dismissed and you are taken to a Tribunal and the employee is awarded reinstatement, can you refuse to reinstate?*

A. Yes. If the Chairman has it in mind to award reinstatement he will discuss it with the employer at the hearing and if the employer says that under no circumstances will he reinstate, then the award is made. I'm not saying that the award won't be

fairly maximal but it would be the height of absurdity for the law to put two people into a relationship against the will of one of the parties.

Q. *If you have a recognized pay day, such as a Friday and that is a recognized day when people give notice and they, say, give notice on a Tuesday, can you insist that they give it on Friday on their pay day?*

A. No. I think the law says (Employment Protection Consolidation Act of '76) about one week's notice. We've been brought up to think that it had to be in relation to the pay week and I think before the '78 Act, again we are talking about something that was enshrined in common law, the interpretation of the courts was in relation to the pay week.

Q. *Reference to current social trends. What would the employer's situation be if he attempted to introduce a no smoking policy on his premises where workers had previously enjoyed this facility?*

A. I think you would be quite justified in so doing, although there are all kinds of problems. In law I think I would be inclined, in view of the medical evidence, to throw the Health and Safety in Work Act at anyone who tried to say nay, if you wanted to establish a non-smoking area.

Q. *On the same point, we're handling food and surely it's only right and proper you can expect your employees who are picking mushrooms not to be smoking while handling a food product? We've insisted on this on our farm.*

A. You're right to insist on this. You're right to dismiss on an infringement if you wish to. It's as simple as that. Is it a problem, I mean I would have thought that because of the food regulations, because of the Safety Act that you could put up no smoking areas.

Q. *You referred earlier to part-time employees working 16 hours or less, can you explain the position of an employee who habitually works more than 16 hours but is not required under the terms of their employment to work 16 hours, in other words if they only work 12 hours for some reason, for a few weeks, they wouldn't be dismissed?*

A. Their hours of work are what they become. If, for example, someone was contracted to work 15 hours a week but over a period of time worked 18 hours, their rights in law would be appropriate to a person contracted to work 18 hours a week. So, you look at the actual pattern, not necessarily the written notice.

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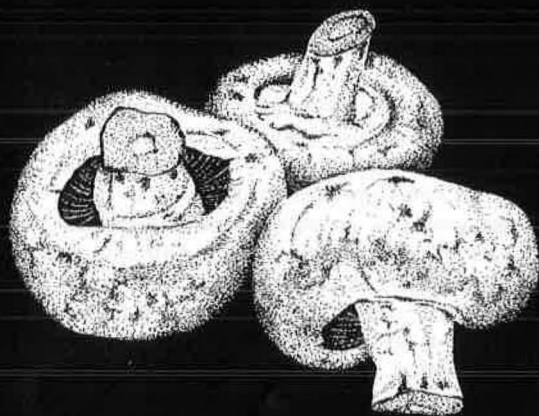
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Generic Advertising: Another View

When a whole industry needs to promote itself, a generic PR campaign carries more weight than the efforts of individual companies — and is more cost effective. By **Nicola McLaughlin**

If a market worth millions runs into problems, a £10,000 public relations campaign by a lone company will be a voice in the wilderness. But if ten companies, united by a common concern, pool their resources to mount a £100,000 campaign, the story is likely to be different, as examples ranging from the photographic industry to the bus and coach business clearly show.

But, as one PR consultant puts it, opting for generic PR 'demands a certain psychological leap'. Funds have to be diverted from brand or corporate promotion into some untried PR melting-pot, and, unless the campaign is set up through an established trade organization, companies normally in competition have to pool commercial information to fuel an effective campaign. Generic campaigns are, none the less, used by a wide range of industries, and PR practitioners relish the scope and authority they have with industry-based, multiple client accounts. Freedom from the limitations of branding is the real luxury of generic promotion.

The British media, so ambivalent in their attitude to normal PR based editorial, are as addicted to generic material bearing the title of research as they are to opinion polls. Generic PR is 'acceptable', and its use by the media gives it a consumer credibility that branded campaigns can seldom achieve.

One of the snags of generic PR is that it can be lonely out there in the market-place. Where generic PR is supported by strong brand marketing, as in the case of the photographic campaign, the combination can be powerful. But generic marketing is often a substitute for a number of separate, branded campaigns — and an effective generic campaign can be negated by the failure of contributing companies to seize the marketing opportunities created.

Another sector that is generally keen on the generic PR technique is the food industry. There are campaigns for butter, eggs, tea, flour, mushrooms, chicken and bacon, to mention only a few, and promotional organizations range from

the British Sausage Bureau to the British Duck Advisory Bureau.

A generic account, even in the food industry, is not an automatic passport to lavish funding, however. When the Fresh Fruit and Vegetable Bureau was set up in 1976, Cameron Choat PR was given a total budget — fees included — of £25,000 to boost an industry worth £1.65bn in UK sales. But the market last year was valued at £2.39bn, and Cameron Choat's budget had climbed to £70,000.

'The new interest in healthier diet is enormously significant. Eventually, the industry will have to go into hard, above-the-line generic advertising.

'There's a far better response from MPs to a group industry lobby, especially when it has consumer support, than to an approach from a single company. Generic campaigns have far greater credibility than individual efforts.'

An extract from an article that appeared in *Marketing*.
Ed.

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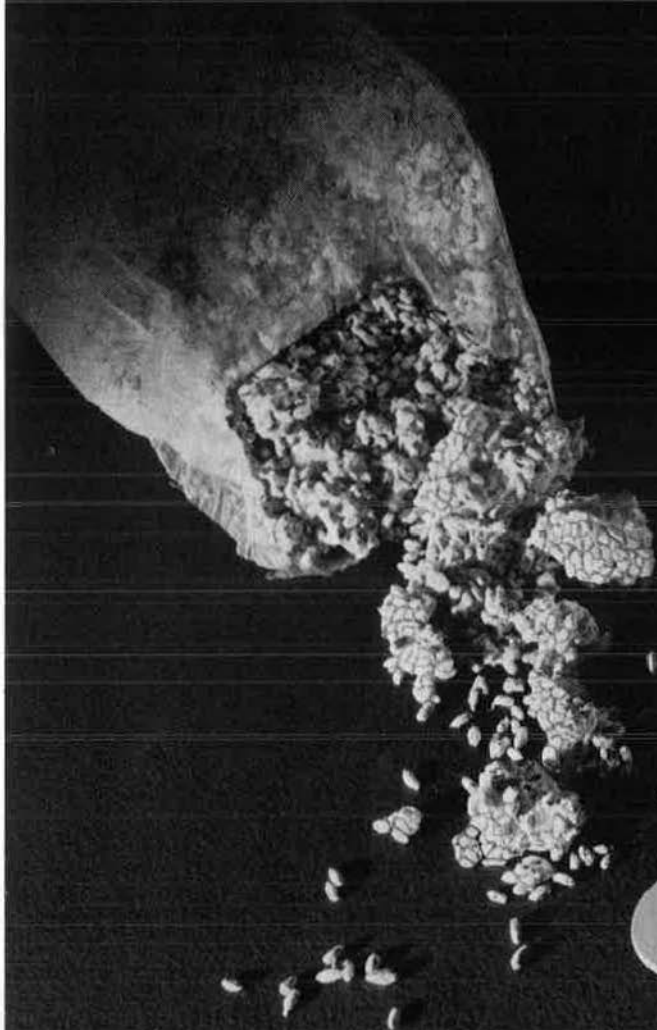


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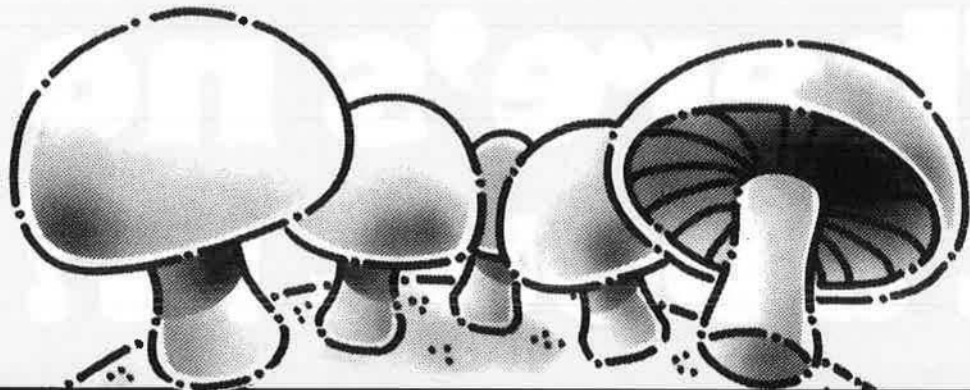
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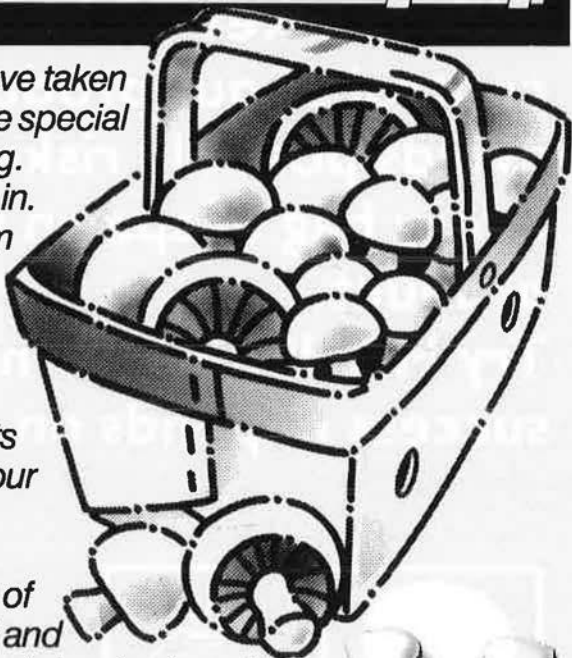
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Geoff Ganney's

Growing Pains



1st December 1983

Change in weather has meant that the pre-wetting conditions are leading to moisture levels 74% plus at filling. Continual pumping back and run off seems such a laborious way of starting a composting process, yet it is pretty well universal in the Phase I preparation manual — no doubt one day there will be a change to a more accurate method which really is required.

2nd December

Premature opening at low temperatures causing a little mind searching. Plenty of casing depth and water reserve and even environmental conditions! Maybe as our grower Jack Cadman says, if a certain strain is cold it doesn't always mean that it will hold closed. Some like it hot! Jack retires this month after 33 years with us and that amount of experience is going to take some replacing. No doubt he will be calling in from time to time to keep us on the right road!

5th December

Enquiries about grants for improved heat savings on glasshouses, with regard to a mushroom unit have met with no answers. Have to ring ADAS again.

6th December

Talking composts with Nick Borrison got us around quickly to Phase II and the use of bulks. Having learnt a great deal since we saw the newly constructed units on the farm walk at the Birmingham Conference he is convinced that they are achieving more uniformity. Maybe this is so and evidence appears to be mounting in favour of yield increases of bulks. But I find quoted weight losses of 40% plus during Phase II difficult to reconcile with costs of composts!

7th December

Problem of 'Bacterial Blotch' still of paramount importance to a large number of growers. Once

established, albeit through a fault in the microclimate control, it tends to behave as a fungal pathogen and spread individually in a shed or around a farm. Various control measures have a sporadic effect on reducing the problem and the effect of strain is great. But then we've said all this before. . . .

8th December

Purchased some new electronic temperature probes for our twice daily routine recordings. Older ones were becoming unreliable and it is far better to discard and replace with up-to-date equipment. Being very sensitive one has to take care not to read too soon but wait for a settling-down period. Checked thermometers in the peak-heat spawn rooms.

9th December

Computer blew a fuse coupled with clouds of smoke amid a frenzy of activity just as the wage role was half way through! Compost filling hopper chain cracked open with half a shed to complete! Manure delivery lorry taking some ready-mix out broke down on the A1. Cold store stat stuck down below freezing and literally froze baskets of mushrooms on the top of the racks! Just another day!

12th December

Talking with Stan Fiedorek at Bestwood Park Mushrooms on the problems of compost moisture at filling. Having supplied him some of our compost it is, of course, the problem of tailoring a very productive compost to individual conditions, a virtually impossible task. One has to look for a good average.

13th December

Greatly impressed by a note in the *Fruit Trade Journal* referring to 'gobbledygook' which is not, as I thought, a Chinese turkey, but a style of

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writing designed to disguise a point (i.e. 'Growing Pains'). Abraham Lincoln's Gettysburg Address amounted to 309 words, The Ten Commandments 39 words and the EEC legislation on the sizes and shapes of cauliflowers 6,432 words . . .

14th December

If ever there is EEC legislation on the grading and sizing of mushrooms we will have a real problem.

At last a quote from the MGA appeared in the *Fruit Trade Journal* confirming that 150p for best flats and 240p for good cups is likely to hold. Confidence abounds and should help to reduce the overdraft.

15th December

Black patches in some spawn-run trays at casing gave rise to speculation of not enough air at Phase II. But then it could have been a bit of overcomposting or underfilling? The permutations are endless . . .

16th December

Clear plastic bags working a treat for stalks and throwing away virtually eliminated. Wondering whether to include stalks back into pre-wet and save the cost of hiring skips. Really need a method to ensure absolute mixing, but then it is a practice that is done without too many apparent problems. Maybe we just don't hear about those problems!

17th December

Casing depth fallen away in that being put on dry it appears to be the correct depth, until watered! Must keep on checking and double checking.

18th December

Director's notes seeking for volunteers to serve on various sub-committees, put pen to paper to serve on the Marketing and Publicity sub-committee. Will make a change from research.

19th December

Early morning visit to the wholesale market did little to improve my confidence in quality and presentation of this thing we all try to produce. Crumpled, creased, squashed, dirty, torn, handleless, wet, bedraggled, flattened were but a few of the adjectives that one could use to describe the packaging used. Please, a concerted effort is

needed before we are overtaken. The neat plastic containers of the Dutch mushrooms and the attractiveness of the French veneer long basket leaves us back in the Dark Ages. Makes you wonder why we take so much trouble to grow and grade the mushrooms and then to put them into such a disastrous container. Waxed paper bags would be as suitable!

20th December

Building up to Christmas with the usual rush and can there ever be a more crazy time of the year to try to run a business? Will the mushrooms be early, late or there at all?

21st December

Hatch of sciarids indicating diazinon granules being missed as routine compost treatment. Debating if to return to malathion watering at the end of the second flush. Decide to maintain a complete break from the organophosphorous compounds and used pyrethrum atomizer instead.

22nd December

Tony Claxton and Alan Benfell called in to have a pre-Christmas natter and as Tony said, 'We should have come earlier and brought our knives'. As Jim said, 'You should have been here yesterday'!

24th December

Delighted to hear from Jim and Edith Sinden with the charming Dickensian words on their card 'Christmas would not be Christmas but for the interchange of our good wishes'. Likewise 'Mushroom growing would not be Mushroom growing but for the interchange of our good ideas'.

Thanks for the years of help Jim.

27th December

Beautiful looking crops in every shed just ready for picking tomorrow! No doubt they seem to have benefited from a 4-day break . . .

28th December

Received voting paper for election of officers to small band of MGA. Have to check to see if size is still on square footage or output.

29th December

Verticillium in good control after the Christmas Holiday considering it hadn't been touched for

four days. No doubt the lowering of temperatures has helped to slow the growth of the pathogen so even where no chemicals are used, incidence is low. Disease teams, other than being hampered for vision have quickly gained control. Mind you we have another Bank Holiday to contend with and we will probably find a flare up at the third flush.

30th December

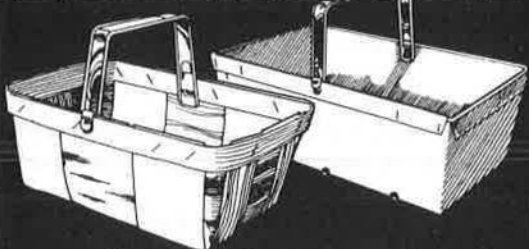
Most sad to learn of the loss of George Baker, a great enthusiast of MGA affairs and for generations the competent organizer of many a conference.

31st December

Glancing through the membership list of the Association left me puzzled at the lack of Trade members, certainly in relation to the enormous number of suppliers we seem to deal with. Don't even have the AB Group as Trade members! No doubt members could coerce various traders to join? Also very few overseas members from Holland, Belgium and France which as we use the same market is strange . . .

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Ten years on . . .

by Gerard Derks

It is ten years ago that I gave a paper at the MGA Conference at Brighton in October 1973. The title of the paper was '3 Phase 1 and Consequent Developments'. Little could I guess that ten years later I would be here again to comment on what I said ten years before, and I think that I am right when I say that none of my audience, nor myself, had foreseen in those days that this paper would have given such a big push to the industry by stimulating thoughts on the revolutionary ideas expressed in the paper.

The remarkable point about that paper was that, although this was the very first time that these ideas about growing mushrooms were launched, practically nothing has changed from this original — ten years old — concept.

'In my opinion, one of the greatest advantages of the "3 Phase 1" system is the fact that it allows growers to make a pretty cheap incubated compost, ready for being cased in trays, on shelves, or in bags. Some of us are changing the whole conventional concept of mushroom growing, given that at the time of filling, the material to start with, is no longer a compost ready for pasteurization but a compost fully incubated and ready for casing.'

One night, instead of sleeping, I was thinking of the "3 Phase 1" system producing incubated compost and the new Dutch system with nylon screens for emptying and filling the beds. Before morning I reached the conclusion that it must be possible to combine the two systems. That means, to collect the incubated compost from the tunnel, work it on the nets and have an automatic line which adds supplements to it, which also presses the material and then puts the casing layer on and waters it before the nets are moved into the house.

My collaborators and I projected the lay-out of a mushroom plant built according to these ideas. The unit is based on a row of 28 mushroom houses with shelf-beds, each house having a growing surface of about 500 m². The compost of this plant is prepared according to the "3 Phase 1" system in tunnels. Once the compost is fully incubated, the material is transported by front-loader to the filling and casing

device. This specially-designed line, which has a length of about 24 ft, moving on rails in the area between the tunnels and the houses, is designed to carry out the filling, casing and emptying operations. The machine is about 7 ft wide. The working width of the machine is about 5 ft. The compost from the front-loader goes on a belt which transports it to a hopper. The hopper distributes the compost on the nylon net which runs underneath and supplements can be added, if desired, at this point.

Whilst the net is moving slowly forward, a second device levels out the compost, and presses it.

Casing follows immediately by a hopper designed for the purpose, and the soil is then watered as close as possible to the optimum point. All the time the belt is moving into the houses, it is pulled by a little two-horsepower engine, which is fixed at the far end of the shelf. Once the first bed is filled, the machine is lowered to the height of the next bed.

The screen is connected again and the operation carries on. With this system it takes about four minutes to fill, press and water a bed 60 ft long and about 4½ ft wide. Compared to existing lines, this device is quite cheap and extremely simple. There are no electronic parts; just a simple mechanical movement. Nothing on the device is patented because it is simply a matter of joining together various existing parts that have proved their validity in the past.

For the time being, I would like to conclude this paper assuring you that we are absolutely convinced by our experiences, that we are on the right track in the eternal battle in the life of every mushroom grower, which is the battle of price against cost, resulting in profit or loss.'

These quotations from the 1973 paper lead in to the development of this system and about ideas and comments of how to guide the system in the direction of absolute technical safety, efficiency and economy.

Every mushroom grower knows that at least 80% of the success of his crop depends on the

quality of his compost. This is also true for incubated compost.

One of the first mistakes, in various countries, is that growers buy fermented compost and then do their own pasteurization and incubation. This may work in a country like Holland, where compost is made according to the rules of the Research Station and the Mushroom Growers School, where every detail is part of public knowledge, and where everything is regularly controlled by the various institutes. The situation becomes much more complicated however when the grower does not know all the details of the system of fermentation, because fermentation, pasteurization and incubation are three separate operations that are very much related one to another.

In other words, it is very difficult for a grower to properly guide his pasteurization and incubation if he does not have a very clear idea of how fermentation is carried out.

The lack of this knowledge has been a reason for many mistakes in preparing incubated compost.

Coming back to the importance of the quality of the incubated compost, it is obvious that tunnels for pasteurization and incubation must be perfect to do the job. There is sometimes a disastrous tendency to save money on the construction of tunnels.

We now have about 15 years experience in tunnel operations, and we know what we are talking about.

Mistakes in tunnel-construction are also a reason for the poor quality of incubated compost. Some of the mistakes are that the dimensions of tunnels are not appropriate, isolation too poor or in the wrong place, joints not prepared properly, gas and vapour-sealing insufficient, air-passage through the false floor too poor, air-ducts out of dimension, too violent emission of live-steam, insufficient heating capacity for controlling the peak-heat, fans out of dimension, insufficient filtering, etc.

Another important factor that influences the quality of the pasteurized compost is the system used for filling the tunnels. For example, filling a tunnel for pasteurization by a front-loader is only admissible if the owner of the plant does the job himself.

The best system as far as I know is filling the pasteurization tunnel with a hopper and belt system that has a switching-belt at the far end which distributes the compost evenly. It is

interesting to realise that only the original Agrifung tunnels are not influenced by the filling system. Even when one leaves 10 m² completely without compost, the rest of the pile will still have a regular distribution of air, thanks to the piping-system in the floor.

Irregular filling of pasteurization tunnels has, in the past, been one of the main reasons for poor quality compost. For incubation, the tunnels have to be filled regularly, but the negative effect of irregular filling is much less in incubation tunnels than in pasteurization tunnels.

The best way of emptying a tunnel is to use nylon mats that are pulled, with the compost, out of the tunnel. The pulling machine at the far end of the tunnel, should have no spinners or other equipment that break up the compost too much.

One of the dangers of tunnel pasteurized (and incubated) compost is that the compost becomes too short because of the manipulations by the various machines. When the machine for emptying tunnels is built properly, there is no need for such equipment and the result is a much better and longer compost at the end of the process.

At the moment of emptying the pasteurization tunnel the compost is spawned with the help of a simple spawning-device, fitted on the emptying machine, and then forwarded into the incubation tunnel by a belt-system. A simple switching belt at the end of the filling line distributed the compost evenly in the incubation tunnel. At the end of the incubation period the same tunnel-emptying machine is used for unloading the tunnel and the compost is then transported into the mushroom houses. At this point, supplements can be added if desired. Although a well-incubated compost is quite resistant to infections, much attention should be paid to the system of bringing the compost from the incubation tunnel to the growing area, in case the farm is subjected to virus infection.

At this point, the incubated compost is forwarded into the mushroom houses by a filling machine, as mentioned earlier. This machine presses and levels the compost and brings a casing layer of the desired depth on top of the compost. We reckon a filling-rate of 85–90 kg of incubated compost per m² is optimum.

If we go back to my 1973 paper, it is pretty clear that nothing of the original concept has been changed. Of course, things have been perfected and in some cases modified, but the concept as a

whole remains untouched.

The system, however, has invaded the mushroom industry. In 1973, Agrifung enterprise was practically the only firm in the world that produced custom-compost-pasteurized and/or incubated projects for mushroom growers.

As far as I know, Agrifung is today the biggest producer of tunnel compost with approximately 12,560 m² of tunnel-space, followed by the Dutch Mushroom Growers Co-operation, with approximately 6,400 m² of tunnel-area.

Thousands and thousands of tons of compost are produced in tunnels nowadays in France, England, Germany, USA, Australia, etc.

In this connection, it is interesting to remember that in 1973, some said that it was perhaps possible to do pasteurization in a tunnel, but it was certainly impossible to incubate the compost in a tunnel. However, even in those days we had already been doing pasteurization and incubation in tunnels for more than two years.

Today, our experience in tunnels has put Derinco organization in a favoured position world-wide for consultancy and supplies of tunnels. We have under construction a total of 116 tunnels in Italy, Bulgaria, The Peoples Republic of China and West Germany.

We prefer tunnels of between 18 and 28 m long with an optimal length of roughly 25 m. With this length, there are practically no problems, given proper air-distribution.

From the point of view of labour, the length is also very suitable because it corresponds with a half work-day for doing the filling, or the emptying job.

The width of our tunnels is now standardized on 3 metres. We have built tunnels, in the past, of 5 m wide and also very narrow tunnels but in the long run we have found that 3 m is the optimum.

Producers of machinery and equipment, nylon nets and what have you, can supply us equipment of all desired dimensions, but it is obvious that when the equipment is more or less standardized, the cost to produce these items will become less.

Our tunnel panels are made of polyurethane. They are 150 mm (6 in roughly) thick and on the inside of the tunnels they have a stainless steel sheeting. The panels have a special armoring, which makes it impossible for the sheeting to separate from the polyurethane.

This tunnel-construction may seem expensive but I am convinced that only the best is good

enough. The cost is very reasonable because we have standardized the dimension and the building system and because we achieve good quotations, thanks to the great interest in this system.

As I said earlier, the system of making the joints of the tunnel-panels is very important. I should like to add that it is the determining factor for the quality of a tunnel constructed with panels, and in the past, many people have had tragic experiences because of poor and incorrectly made joints on the panels. But this is a problem that has been resolved by our collaborators.

Up to about ten years ago, we had been working almost exclusively with horse manure and traditional supplements in Italy.

Mainly due to the lack of manure and also because of the price, we gradually changed to synthetic compost based on wheat straw and chicken manure.

Today we recommend our clients to work only with synthetic compost, because we find it easier to produce a much more homogeneous product, which is very important with tunnel pasteurization. A relatively small advantage of producing synthetic compost is that all ingredients or supplements can be given in the loose pile. This simplifies the job of turning the compost at a later stage.

For almost 50 years we have been adding gypsum to the pile at the second turn, but with synthetic compost we find no difference if we add the gypsum to the loose heap at its last turning, before preparing the actual stack.

Recently a very big grower in France told me that he had come to the same conclusion and that he follows the same system.

It is a well-known fact by now that tunnel-incubated compost can give very high production per square metre, provided that the pasteurization and the incubation process in the tunnel has been carried out properly.

In 1959 Mr Rasmussen proposed the theory of 'Shake-up-spawning'.

Possibly one reason for a higher production with tunnel compost is the fact that this compost is 'shaken-up' during transport from the tunnel to the mushroom houses.

Some people have remarked on the poorer quality of mushrooms grown on this system. But, in 35 years that I have been growing mushrooms, I have always found that the heavier the yield, the lighter the individual weight of each mushroom.

With supplementation, in a well-built mushroom house and a 100% adequate ventilation and humidification, the quality of the mushrooms can be improved, but the fundamental rule remains.

On the other hand, many people cause confusion about quality when talking about the system of growing, when they mention the poor quality of mechanically-harvested mushrooms. It is true that, only with this system of growing has the road been cleared for mechanical harvesting — at least up to now — but nobody who adopts this system is obliged to use a mechanical harvester. In recent years I have grown hundreds of crops on this system producing outstanding quality, firm, heavy mushrooms, and I must admit, I have also harvested hundreds of tons of 'rubbish' when we decided to harvest mechanically, but this is, of course, a matter of calculating what is economically more interesting, at a given point and under certain circumstances.

Mechanically-harvested mushrooms are certainly much cheaper to produce. The final product, however, is destined for the canning industry. Now it is obvious that when the housewife, the restaurant and all our other customers, can buy canned mushrooms (already cleaned and cooked and no extra work) at a very cheap price, they are no longer all that enthusiastic to buy fresh mushrooms at the same price. In other words: with too many mechanically harvested mushrooms we can easily damage our own fresh market.

Apart from this, I am of the opinion that we should press much more on the fresh market, because in this way we can protect our local industry much better from competition from countries like Formosa, China, Japan, Korea, etc.

Thus, let us come back to our argument of growing mushrooms in houses specially designed for the purpose of being filled with incubated compost.

Machinery to carry out the various operations, mainly filling and emptying, is more or less built according to the principles described in my paper of ten years ago.

However, one thing is very important, and that is, to also standardize our machinery all over Europe, so that manufacturers can produce this machinery at the cheapest possible price.

As a consequence of this, dimensions on new mushroom-houses should be standardized as

much as possible, especially as far as the width of the houses and the width and height of beds is concerned.

In my paper of 1973 I said that we had projected the layout of a mushroom-plant based on a row of 28 houses, each house having a growing area of about 500 sq. metres.

In 1983 we project our mushroom plants in units of 7, 14 and 28 houses, with a growing surface of 468 m² per house. So little has changed from the initial concept.

To grow heavy crops, of reasonable quality, it is extremely important that the houses have proper dimensions and that insulation and ventilation are as close as possible to the optimum.

This means that the houses should be about 26 m long by about 8 m wide. For the most adequate distribution of air and temperature at the most convenient price.

The K value should be between 0.5 and 0.6 for proper air-distribution and cost, and three rows of mushroom-beds is ideal with shelves five high.

Four would be still better from the point of view of air-distribution, etc., but, economically speaking, this solution is doubtful.

Talking of costs of production in connection with the layout of the plant and the individual mushroom house, it is very important to keep in mind that with this highly mechanized system, a tremendous lot of labour is saved in various operations, such as filling, casing and emptying, but we should be extremely careful to avoid as much as possible the 'dead' times for internal transports, for bringing the machines in their working positions, etc., etc. Because what is saved at one end can easily be lost at the other.

Therefore the layout of a plant, the dimensions of the house, the number of beds, etc. all have a definite importance on the economic production of future crops.

Based on our experience in the past, I have prepared a scheme of a working house — with and without machinery — including all the labour, from the arrival of the basic materials, to the end of the crop, excluding the harvesting operation — for a mushroom plant that produces 9,000 kg of mushrooms per week (almost 20,000 lb) on our growing system.

This calculates the labour required (number of working hours) weekly for the production of 20,000 lb of mushrooms. The costs for raw material such as straw, chicken manure, spawn,

peat, etc., are easy to establish. It is more difficult to calculate the proper cost for heating, cooling and ventilation, because this depends on the layout of the plant and the materials used for building.

But with a well laid out growing area, using modern materials for insulation, it is quite possible to achieve a significant saving on your energy bill.

The third important component of the cost-price for mushrooms is the depreciation and the interest for buildings and machinery. If, for example, we could save, say £5,000 per year on labour and the costs for depreciation and interest were more or less the same, then it would not make much sense to decide for the investment. Apart from the fact that on several occasions the machine can do a more perfect job than the worker.

But when the saving on labour equals the cost of depreciation and interest, then the unit is too small to justify the investment.

Derinco mushroom plants are projected in units of 7, 14 and 28 houses. The plant of 7 houses produces 20,000 lb per week, based on a crop of 20 kg/m² (4 lb/sq. ft), in 28 cropping days. This unit is, in our opinion, the smallest possible version from the point of view of economics and continuity.

To supply the mushroom houses weekly with the necessary quantity of incubated compost will need 4 tunnels: one for pasteurization, two for incubation and one spare.

At the limit, three tunnels could do the job, but to be on the safe side, we prefer to have a fourth (spare) tunnel.

We are supplying at the moment 9 complete mushroom plants to various parts of the world. Some of them are 20,000 lb/week units and 6 of them are units of 40,000 lb/week.

Coming back to the costs of depreciation and interest, the actual price indication for our 7 houses is of Lit. 1.250.000.000 (or UK £510,250) ex-works Italy, excluding VAT and the preparation of the building-site, foundations and base-ments. All the rest is supplied and assembled as a turn-key project ready for production by our Italian organization. This complete with the tunnels and all equipment, shelving and machinery.

This investment may seem to be on the low side, from what we hear when people are giving figures about building-costs.

It must be remembered that even the most modern and sophisticated plant and growing system needs attention from the grower in charge.

For this reason I am not convinced about computers and other sophisticated equipment. It is certainly a sign of 'standing' to be able to program from your office the quantity of air, the temperatures, the humidity required, and so on. But what can these instruments tell us about the exact time of watering, about the danger of bacterial blotch, about suspicion of virus, about the beginning of an outburst of *Verticillium* or (*Mycogone*), about the exact time of starting the (mechanical) harvesting, etc.?

I believe in a good mechanical system of air-regulation (fresh air versus recirculated air for instance) connected with the heating or cooling-system, and possibly with a CO₂ meter in order to have the proper amount of air in the house without using any more energy than strictly necessary.

I believe in a good heating and cooling system, in good insulation, in first-class shelving and machinery and so on, but at the same time, I reckon that with a good installation at his disposal — and from this point onwards — the grower will have to produce quality and quantity.

And this can only be done by his continuous presence in every part of the plant and his continuous attention to every detail involved, being suspicious and alert every minute of the day.

The more often he goes into the houses, the better he will understand the needs and the problems of his growing mushrooms.

When he goes into the houses regularly he will also see the temperatures and the humidity, he will smell the air, and his eyes and nose will observe things that cannot be seen from the computer-screen.

Therefore, let us not exaggerate the importance of expensive equipment that we do not absolutely need. It is more profitable to spend money on a good grower, which we need all the same.

But even with this relatively low cost of investment, we have already an annual depreciation (if we agree to write off the whole plant with all installations and equipment in ten years and to neglect the residual values) of Lit. 278/kg, or £0.05/lb of mushrooms. When calculating interest over 50% of the investment, at an interest rate of 15% per year, we have to add a further cost per kilo of mushrooms of Lit. 208 or almost £0.04/lb.

Thus, producing 9,000 kg of mushrooms weekly

for 50 weeks per year we will have to face a total cost for depreciation and interest, for the smallest unit we supply, of £0.09/lb. Obviously, in the bigger units, this cost goes down significantly, because much of the equipment and machinery is the same.

But from these figures it becomes clear that seven houses (in our system) is the absolute minimum, and that it is dangerous to exaggerate in investing capital.

The economic situation of mushroom growers in Italy is not very encouraging. The Italian growers have been producing in the past a fair amount of mushrooms, and up to 5 or 6 years ago they have been earning money. But unfortunately this money has been largely spent on buying cars, villas, etc., and in investing money, generally in the private sector. This is because investments for renewing installations cannot be deducted for tax. So there is no encouragement for a re-investment of part of the profit.

This has led to a situation where many plants have delayed adopting new systems. I am very much concerned about the future of many Italian enterprises. In my opinion, several of these plants are condemned to disappear.

On the other hand, there is also a tendency in Italy, as in many other parts of the world, for big industrial and commercial companies to go into mushrooms, building very modern plants with an adequate investment of capital.

In the future we will see a change from the family-type of enterprise to — many fewer — big industrial plants.

About ten years ago, I wrote in the *Mushroom Journal* (June 1973) about mushroom growing in Italy. I remember that I said at the end of the article '... I have a firm belief in the future of this beautiful country as a potential producer of mushrooms and as a leading nation in the development of the profession we all have in our veins ...', and I am still of that same conviction.

Italy is the country that invented the tunnel-system, with its consequent developments. Italian mushroom-production (in kg per year) is very close to the Dutch.

Italy adopted very rapidly, some 14 years ago now, the system of growing in bags, and has the biggest production of mushrooms in bags in this part of the world.

The cultivation of oyster-mushrooms (*Pleurotus*) also expanded very rapidly and Italy again has

been, for almost 10 years now, the biggest producer of oyster-mushrooms in Europe.

In the field of machinery, I would mention the invention of trimming-machines for harvested mushrooms — as you will know in Italy mushrooms are pulled from the beds, but not trimmed at the same time — which has been, and still is, a world-success. Hundreds of these machines have been sold in France, USA, South Africa, England, and many other countries.

In the field of spawn-production, Italy possess one of the most modern and well-equipped plants in Europe.

And last, but — obviously for me — not least, the Italian industries are exporting equipment and machinery and also may complete plants, to various parts of the world.

Certainly there is also reason for some satisfaction in the Italian mushroom industry as a whole. But coming back again for a moment to the difficult situation for growers, one has to realize that the price of mushrooms in Italy over the past 20 years has tripled and that at the same time, the cost of labour has become thirty times higher.

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In countries like Holland, where the inflation-rate is much lower, the price of mushrooms has not altered significantly in 20 years, but the cost of labour is also ten times higher. So it is obvious that the only answer lies in higher production, at a lower cost. To obtain higher production we need the help of scientists and the various Research Institutes throughout the world.

To lower the costs of production we will have to mechanize as much as possible.

And at this point I think that the '3 Phase 1' system and its consequent developments have given a valid contribution to our industry. I have never stated that this system is the only answer, but it certainly has reduced, to a very large extent,

the cost of production, where it was adopted properly. For the future, I believe that it will always be possible to make a good living in growing mushrooms, as long as one is prepared to invest in the industry at the right moment and in the proper way. The system with tunnel-incubated compost has been a step in the right direction and is certainly a good way of investing, especially when it is followed by mechanization of the growing area.

Coming back to the last passage of my paper of 1973 I am still convinced that, with this system, we are on the right track in the battle of price against cost.

	<i>Working hours general operation</i>	<i>Hours front- loader + 1 operator</i>	<i>Hours compost turner + 1 operator</i>	<i>Hours tunnel filling and emptying machinery</i>	<i>Hours bed filling and emptying machinery</i>
Assistance unloading raw materials		1			
Forming of loose pile		4			
2 Turnings of loose pile		6			
Watering of loose pile	6				
Formation of actual compost — pile		4	4		
2nd + 3rd turning			6		
Cleaning machinery	2				
Preparing tunnel and machinery for filling	4				
Filling of tunnel	3	3		3	
Pasteurization control	6				
Preparation machinery for unloading-spawning-incubation	4				
Unloading-spawning and loading of incubation tunnel	9			3	
Incubation control	6				
Preparing machinery for unloading incubation tunnel and filling of mushroom house	6				
Unloading incubation tunnel + filling mushroom house compost + casing	9	4,5			4,5
Preparation of casing	3	3			
Watering of house	18				
Disinfection of house	2				
Control of house	12				
Control of installation (boiler, etc.)	4				
Cleaning of filling equipment, etc.	5				
Emptying of the mushroom house	5				2,5

Labour required (weekly or per house) for the described operations with a Derinco 7 house production unit, excluding harvesting. Production 9,000 kg/week (\pm 20,000 lb) based on 20 kg/m² and 42 tons of incubated compost on 468 m² bed-surface.



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Organization of Mushroom Research at GCRI



Farewell to Doreen Gandy and Peter Flegg from the GCRI staff concerned with mushroom research.
Left to right Front Row: Kerry Burton; Phil White; Terry Fermor; Clive Penn; Margaret Love. 2nd Row: Alun Rees; Phyllis Randle; Peter Flegg; Doreen Gandy; Ian Wyatt; Doug Spencer; Richard Gaze. 3rd Row: Jeff Smith; Carol Frost; Olwen Stone; Roy Nichols; John White; Jim Lynch; Steve Lincoln; Navin Pathak; Robert Minamadu. Back Row: Wally Pentecost; Adrian Wadey; Trevor Jordan; Dick Barton; Tim Elliott; Ken Manning; Steve Matcham; David Humphries.

The following reorganization took place on 1st November 1983:

The early retirement of Peter Flegg, Head of the Mushroom Section of the Crop Science Department and Mushroom Crop Group Leader, and Miss Doreen Gandy, who was responsible for research on mushroom diseases in the Plant Pathology & Microbiology Department, has necessitated some reorganization of mushroom research.

Dr J. M. Lynch, Head of the Plant Pathology & Microbiology Department, will be Mushroom Crop Group Leader. He has already become a member of the MGA R&D Committee in succession to Dr Hussey.

Dr A. R. Rees, Head of the Crop Science Division, will take over the leadership of the Mushroom Section, the staff will be Mr J. F. Smith and Miss Phyllis Randle. Additionally, Mr D. J. Humphries, the Nursery Manager, will devote half his time to mushroom research within the Mushroom Section by taking over direct management of the experimental programme of the Section, whilst continuing to supervise experimental work for other Departments on mushrooms in the Mushroom Unit.

With the approval of the Senior Horticultural Adviser ADAS, Mr Richard Gaze, the National Mushroom Specialist, will act as a consultant to Dr Rees on the Crop Science Department pro-



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gramme. This arrangement will ensure that the close contacts with the industry which have been a feature of the present co-operation between Mr Gaze and Mr Flegg are continued. It will also strengthen the links with the programme of mushroom development work at Lee Valley EHS, help avoid overlap and promote closer integration of the GCRI/ADAS Mushroom R&D programme.

The Mushroom Panel will in future be chaired by Mr Humphries with Miss Randle acting as Secretary. Mr Humphries, in consultation with Dr Rees and Dr Lynch, will be suggesting revised membership of the Panel to include Mr Gaze, and new Terms of Reference.

Dr Lynch will take direct responsibility for research on mushroom diseases, and will be assisted by Dr R. Barton and Mr P. Atkey on virus

diseases, and by Dr T. Fermor, who will redeploy part of his time from work on mushroom microbiology in order to develop a programme on the use of microbial antagonists in disease control.

Regular review of the mushroom research programme and of its co-ordination with ADAS and growers will be provided through a small group, with the Director as chairman and including Dr Rees, Dr Lynch and Mr Gaze. Mr Harold Linfield, who is the mushroom grower member of the Governing Body, will be invited to attend meetings of this group, together with Mr Jeff Green, who is currently Vice Chairman of the MGA Executive Committee and, with Mr Linfield, is a member of the MGA R&D Committee and the Station Advisory Committee of Lee Valley EHS.

THE BUSH TELEGRAPH

FEBRUARY 1984

... Nancy Reagan; yes, *that* Nancy Reagan, was one of the first to taste the mushrooms from John Rodwell's new farm in Solvang, California. Both President and Mrs Reagan thanked John for a gift of some of the first to be picked, in a letter from the First Lady. How about that for a bit of promotion?

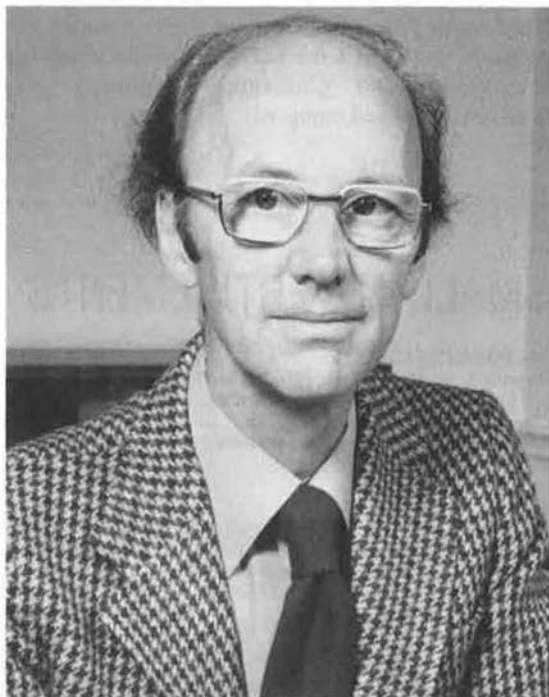
... The International Society for Mushroom Science /ISMS/, the Hungarian Society of Agricultural Sciences /MAE/ and the 'Duna' Agricultural Co-operative are organizing an International Symposium in Budapest on 23rd-25th October 1984.

The Symposium deals with 1. Substrates for Mushroom Growing, 2. Cultivation of *Pleurotus* Species.

Deadline for remittance is 30th June 1984. For later remittance, after July 1984, a charge will be added to all registration fees, US \$120, late remittance US \$150. Fees for accompanying persons: US \$80, late remittance: US \$100. Full details are held in the MGA office.

... The new Director General of the Agricultural Development and Advisory Service is Professor R. L. Bell, who is at present Director of the National Institute of Agricultural Engineering,

Silsoe. He will take up his new appointment during March 1984.



... A new hire service for portable conveyors has been introduced by Portable Conveyor Hire Ltd of Walsall for handling agricultural produce, building materials, fertilizers, chemicals, feed-stuffs and waste materials, with a range of Sure lightweight conveyors of 3 metre to 15 metre centres and belt widths of 500mm and 650mm.

... The final annual report of the Central Council for Agricultural and Horticultural Co-operation shows that Banbury Marketing Services' product promotion campaign, with an approved total cost of £68,800 received an approved contribution of £30,000. This approved contribution was the equal top amount in the 1982/83 report.

... Who got a mention on the radio from Terry Wogan then? And for the benefit of overseas readers, or anyone landing in the UK from another planet, Mr W. is the disc jockey on BBC Radio 2.

The mention went to our own Vice-Chairman's mushroom farm. Sadly, it was a travel information flash to let motorists know that a compost lorry had broken down on the A27 Arundel Road. Ah, but next time. . . .

... From a tiny pilot scheme last year, Hensby Mushroom Products now have eight chambers in constant use, and a further four will be ready for production after Christmas, producing pasteurized, spawned compost.

This has necessitated a re-shuffling of personnel, the most sweeping change being that Sales Director, Brian Fairbrother, is now supervising the management of Hensby Mushroom Products with two assistant managers, Tom Ward, from Writtle Agricultural College, and Ian Edge, who for some years has had practical experience on his mother's mushroom farm.

To maintain the link between the company and customers, on the road will be Miss Diana Trollope, BSc. She has some experience of mushroom growing in Essex.

In the laboratory is Mrs Pat Hall, nee Cresswell, who does the analysis of Phase I and II composts and also to fulfil a long term need by growers for quick and accurate analyses. The cost of this will be £6 per sample (plus VAT).

Finally, there is perhaps no need to tell you that the whole is still under the eagle eyes of those two fearless founders, Ferd and Sylv.

... I.F.M. Industrial Food Machinery Co. Ltd, have announced new designs in the range of Technopompe High Pressure Washers. The models now comprise hot and cold water washers, steam cleaners, and sand-blasting attachments, in pressure from 750 psi to 3,000 psi.

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