

Pairing Vegetables and Wine – Relationship between Taste, Lifestyle and Marketing Strategies

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November 2011

Abstract

It is widely accepted that the per capita consumption of fresh vegetables in developed western societies is generally declining. In Australia, this decline in consumption is having an increasingly adverse effect on the national health status and the income of vegetable producers. Concurrently, the global economic crisis has seriously impacted on the income wine producers are able to draw from both domestic and export markets. While most consumers can readily link various wines to different meats, fish and cheese, exploring the extent to which consumers' associate wine with vegetables may provide an alternative means to simultaneously enhance both vegetable and wine consumption. The purpose of this research is to identify whether wine can enhance the taste of vegetables and vice versa, to what degree and to identify the efficacy of this relationship. The findings will be used to develop marketing strategies that will facilitate a greater uptake of vegetables and wines within the community and thus contribute to improving economic outcomes.

Key Words

Vegetables, Wine, Taste and Aroma, Health Status

Executive Summary

The per capita consumption of fresh vegetables in developed western societies is generally declining with serious effects on the income of vegetable producers. In Australia, this decline in vegetable consumption is also having an increasingly adverse effect on the national health status adding to the national economic cost. The World Health Organization reports that increasing fruit and vegetable consumption has been identified as a global health nutrition priority. Epidemiological studies suggest that substantial reductions in diet-related disease and health care costs would be achieved if fruit and vegetable consumption were raised to recommended levels.

Concurrently, the global economic crisis has seriously impacted on the income wine producers are able to draw from both domestic and export markets resulting in the demise of many producers.

The consumption of wines, in particular red wines, has been shown to have beneficial health effects. In addition to ethanol, which in moderate consumption can reduce mortality from coronary heart disease, wine contains a range of polyphenols that have desirable biological properties. While most consumers can readily link various wines to different meats, fish and cheese, exploring the extent to which consumers' associate wine with vegetables may provide an alternative means to simultaneously enhance both vegetable and wine consumption.

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It is widely accepted that the per capita consumption of fresh vegetables in developed western societies is generally declining. In Australia, this decline in consumption is having an increasingly adverse effect on the national health status and the income of vegetable producers. Concurrently, the global economic crisis has seriously impacted on the income wine producers are able to draw from both domestic and export markets. While most consumers can readily link various wines to different meats, fish and cheese, exploring the extent to which consumers' associate wine with vegetables may provide an alternative means to simultaneously enhance both vegetable and wine consumption. The purpose of this research is to identify whether wine can enhance the taste of vegetables and vice versa, to what degree and to identify the efficacy of this relationship. The findings will be used to develop marketing strategies that will facilitate a greater uptake of vegetables and wines within the community and thus contribute to improving economic outcomes.

Introduction

In Australia, the consumption of fresh fruit and vegetables is declining and there is evidence to suggest that this is seriously affecting the health of the population (Welfare, 2001). The National Go for 2 & 5 Campaign states that “this poor consumption is a major risk factor that contributes to the overall burden of disease in Australia. In 2002, it was estimated that increasing fruit and vegetable consumption by just one serve per person per day would save the Australian health care system \$157 million per year” (Rowley, 2006). In Western Australia, Pollard et al. (2008) noted that “increasing fruit and vegetable consumption has been identified as a global health nutrition priority...Epidemiological studies suggest that substantial reductions in diet-related disease and health care costs would be achieved if fruit and vegetable consumption were raised to recommended levels”. The World Health Organization (2009) states that “...up to 2.7 million lives could potentially be saved each year if fruit and vegetable consumption were to be sufficiently increased”.

The consumption of wines, in particular red wines, has been shown to have beneficial health effects. Soleas et al. (1997) discuss the role of wine as a biological fluid and its part in the history of disease prevention. They suggest that “wine has been part of human culture for 6,000 years, serving dietary and socio-religious functions. Its production takes place on every continent, and

its chemical composition is profoundly influenced by oenological techniques, the grape cultivar from which it originates, and climatic factors. In addition to ethanol, which in moderate consumption can reduce mortality from coronary heart disease, wine contains a range of polyphenols that have desirable biological properties. The antioxidant effects of red wine and of its major polyphenols have been demonstrated in many experimental systems from in-vitro studies to investigations in healthy human subjects. Several of these compounds (notably catechin, quercetin and resveratrol) promote nitric oxide production by vascular endothelium and arrest tumour growth as well as inhibit carcinogenesis in different experimental models. Abnormal nitric oxide production and bioavailability is associated with: (i) hypertension; (ii) obesity; (iii) diabetes (both types 1 and 2); (iv) heart failure; (v) atherosclerosis; and, (vi) aging. Although their bioavailability is yet to be fully established, red wine provides a more favorable milieu than fruits and vegetables, their other dietary source in humans". The pairing of wine and vegetables could therefore potentially compound the uptake of these beneficial compounds.

This paper, which is very much work-in-progress, reports on attempts thus far to identify the extent to which consumers are capable of associating vegetables with wine and the various factors, including food preferences, experience, convenience and occasion, gender, ethnicity, socio-economic status and lifestyle, which may influence that.

Review of literature

The consumption of wine, which can be traced back to ancient times in many societies, has been extensively recorded. Feher et al. (2007) state that "our knowledge concerning wine is about ten thousand years old. The grapevine is our oldest cultivated plant. According to the Bible, Noah planted grapevines after the Flood, and then he made wine".

For the past century or so, there have been many references in the general literature to pairing food with wine. However, research to date has shown that while many persons involved in the food and wine industries espouse personal opinions, they seldom produce substantive data to support these opinions. The Wall Street Journal pointed out that "men are quick to say that this (matching food and wine) is poetry, not science, and that it's all about finding what works through trial and error" (Wsj.com, 2002). Then there are those more adventurous observers who attempt to specify in detailed lists, wines that pair with vegetables, but again, there is no qualitative data to support these linkages. The Denver Post bemoans this state of affairs when it states that "vegetarians ought to be able to enjoy wine as much as steer eaters or fish swallows, but no one hands out suggestions for veg-heads" (St. John, 2000).

In assessing Australian society, three major food preferences can be identified: Asian, European and Mediterranean cuisine. For the Mediterranean cuisine, red wine of many different styles will probably be associated with capsicums, tomatoes, olives, zucchini and a range of fresh salads. For Asian cuisine, dry white wines are probably associated with steamed and or stir fried Asian vegetables. For the traditional European cuisine, it is possible to identify a number of alternative wines to partner with traditional mainstream vegetables including potatoes, carrots and some crucifers. However, the extent to which consumers are able to associate different vegetables with different wines will depend on their experience with wine. The less experience the consumer has,

the more difficult it will be to make any association. Since 1995, the Australian Wine and Brandy Corporation have promoted wine with lifestyle and healthy eating through Strategy 2025 (AWF, 1995). Given this, consumers with higher levels of income and education may find it easier to associate wine with vegetables, especially given parallel efforts to promote healthier eating.

Methodology

Although an extensive literature review has been conducted in an attempt to discover any published vegetable and wine matches, and to determine the various physical and emotional factors that influence the consumer's perception of these vegetable and wine matches, numerous difficulties have emerged with this approach. In the first instance, there seems to be no complete or definitive list of vegetable types for cuisine purposes. Furthermore, many fruits such as tomatoes are considered as vegetables. Whether a vegetable is eaten raw or cooked in some manner will significantly change its taste and therefore the wine associations.

In the absence of any data, in the first phase of this research, in-depth personal interviews with executive chefs, vigneron and winemakers were undertaken. In order to both facilitate the linkage between wine and vegetables, and to seek support from industry for the initiative, all of those wineries in Western Australia and South Australia that have an on-site restaurant were approached for an interview.

Results of in-depth personal interviews

In total, 18 in-depth interviews have been conducted with senior representatives of the wine and food industries at various wineries and cellar door restaurants throughout Western Australia and South Australia. To facilitate the analysis, the responses have been grouped together under the following headings:

- the lightness or heaviness of the food should be matched with similar characteristics in the wine
Matching vegetables that have similar sweetness or creaminess and similar texture might give a better basis for matching the tastes and textures of wines
Things like potatoes and sweet potatoes are starchy and have an inherent creaminess which often lends itself to being produced in an even creamier style and which can then be associated with a wine for contrast or compliment
Egg whites used in some wine production also reduce tannins and soften the wine
The texture of the wine should match the texture of the food
- some people have an innate ability to match food with food and food with wine
Some simple foods like leeks and potatoes go together. A chardonnay will go well with that as it doesn't clash with the food

Steamed carrots. Combine it with onion, parsley, and some feta cheese and you have a balanced dish. This structure is more attractive and will go with a sweet white wine to balance the saltiness

- wines are matched with the focal component of the dish
Vegetables are usually an accompaniment to meat or some other form of protein. However, if you turn carrots into a lovely creamy soup or carrot vichyssoise, then, depending on what cream is used, there are several wines that could go with that such as a chardonnay
- the complexity of the food
Chefs nowadays are working with a lot of different conflicting flavors rather than having one simple flavour that can be relatively easy to match a wine with. When you've got conflicting flavors, you have to find the dominant flavour, one that tends to override all the others
- wine will either compliment or contrast the taste
Roast honey pumpkin contrasts with the acid in unwooded chardonnay but complements an oaked chardonnay. Similarly, the acid in raw asparagus or capsicum compliments sauvignon blanc
- taste will depend on the manner in which the food is cooked, prepared or served
There is a need to look at the cuisine and the ways vegetables are cooked in matching a wine
Eggplant eaten raw will go with sauvignon blanc, but barbequed will go with a semillon/sauvignon blanc
Tomato, if grilled, develops sweetness through caramelisation which may match with a Napa Valley cabernet, but not with a green, herbal Margaret River cabernet.
Cauliflower cheese tastes completely different to boiled or steamed cauliflower
- the characteristics of a wine change over time
In its early stages a typical sauvignon blanc has a tropical fruit flavour to it. People often talk about passion fruit or tropical fruit flavors, but if barrel aged, over time, sauvignon blanc picks up some very interesting vegetative and herbal characteristics. The older a sauvignon blanc gets, the more pronounced that vegetable flavour becomes and winemakers start talking about green pea, asparagus and capsicum.
- need to match wine styles rather than wine types with vegetables
Marketers associate wines with whole dishes despite there being many fruit and vegetable associations mentioned on many wine bottle labels. These label associations are not consistent
There were many obvious links between wine and vegetables such as sauvignon blanc and semillon with asparagus or dishes with shallots in them.

Results of the focus group discussion

To date two focus group discussions have been held. It was noted on both occasions that the participants in these exercises were excited about discovering the taste complements and enhancements in pairing wines with vegetables. Every person within the focus groups drank wine, with most respondents consuming wine at least three times per week. The majority of wine was consumed at home. In order to evaluate the extent to which respondents were able to relate vegetable consumption with wines, a number of scenarios were established.

1. Summer holidays. You're entertaining a few friends poolside and wish to serve a chilled white wine. What snacks would you offer your guests?

Vegetables. A plate of sliced vegetables and maybe some dips.

Eggplant dip, a bought one, I don't make it myself - but this goes with wines.

What sort of vegetables would you put on that plate?

Snow peas, celery, carrots, capsicum, basically anything I had in the fridge.

I really like raw vegetables so it's a personal preference too.

I can think of nothing better on a Saturday evening than to sit down with a red (wine) and a platter of sliced vegetables. To me, that's a perfect evening meal on the weekend. There's no cooking involved and it's so easy.

Button mushrooms and avocado, olives, cheese, nuts

Chilled vegetables, cheese and crackers with white.

I wouldn't serve raw vegetables with red wine.

Cooked vegetables with red wine

Do you have occasions where you have cooked vegetables with wines?

Bean dip (vegetarian), I normally serve it with a red

If it's colder weather you tend to think of going to something warm and you think of going to a red.

Grilled or roasted vegetables?

Roasted vegetables with red

I roast the vegetables to caramelize them and to bring out the flavour

Potatoes, parsnips, turnips are kind of an interesting one and they can work quite well with red wines because you get that kind of capsicum thing going on in there

Potatoes are actually lovely with red wine....

Roasted beetroot

2. You're having a bunch of friends over for a big night Saturday. You've decided to go Italian – a vegetable dish – loaded with zucchini, capsicum, tomatoes, onions and garlic, fresh herbs and olives. What wine will you serve with that?

Probably whatever they bring.

I prefer to drink a red all the time these days. I find a lot of the whites leave me, at the end of the night, feeling just a little bit unwell.

With that type of vegetarian dish I would serve a red like a merlot.

*I would open a bottle on the table to drink with that no matter what they brought.
If it was a nice crisp white I wouldn't mind starting with that but I would gravitate towards a red. A nice crisp white would counter some of those textures and flavors that, again, are going to be really rich and earthy.
If it's going to be a long evening and there is a nice crisp white there, particularly if it's a Riesling, I think that would be spectacular.
One pairing that I would be very wary of is with those reds which have a chocolate flavour. Basil and chocolate is a very bad mix.*

3. Tonight you decide to go Asian. A nice stir fry is the center piece tonight. Looks gorgeous on the plate, an array of colors and taste sensations. There's a touch of chili, but nothing over the top that will leave you gasping for breath. What wine will you serve with this?

*I'd like a red with this but it doesn't like me - but that's what I would do for my guests.
If there's going to be any chili in it at all I would recommend a good Semillon/sauvignon blanc because they tend to have a bit of capsicum flavour but, more importantly, they tend to be mid-range in between the light crisp and the heavier unctuous sharp chardonnay. That little bit of sweetness helps it sit on the palate quite nicely and complements the spice.
I would use a chardonnay. Unwooded. A bit to the sweet side.
I would say white definitely but, I wouldn't be too particular as I don't have that much experience*

4. Christmas in July. Your place. Cold and wet. Bucketing down. A traditional roast, but this year, you've loaded up on the parsnip, pumpkin, potato and fennel and even a few yams and sweet potato. All this is going to hit the table with a tossed green leaf salad, drizzled in a fresh herb dressing. When your best friend asks what wine can I bring, what will you suggest?

*I'm immediately thinking white.
I'd start with sherry.
Perhaps a sparkling red - a sparkling shiraz.
I just think red because it's cold and it's wet.
I'd rather go merlot or cabernet sauvignon or something like that.
A Pinot might be nice as a change of pace but I would start with that and move to a cabernet*

Discussion

The huge number of wine types and regional variations combined with the large array of vegetables and preparation methods makes it almost impossible to define rules of association if the methods thus far described are followed. Indeed, many of the industry interviewees forcefully expressed this opinion and it is probably the reason that there are no rules for matching vegetables and wine to this day. If a sensory attribute lexicon of terms could be realized which is applicable to both vegetables and wine, it could be used to generate a questionnaire for data retrieval of vegetable/wine associations which would then permit quantitative analysis resulting in data to enable development of marketing strategies that will enable enhancement of uptake in both product areas.

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