

“Noi sotto questo cielo produciamo.”

“We produce under this sky.”

(Walter, Terra d'Arcoiris, 25/02/2009)

Chapter One

Introduction



Fig. 1.1: Winter vine pruning at Valli Unite.

Enrico, oenologist¹ , winemaker.

*“Wine is not a natural product, but an artificial product. Vinegar is natural. Which means that wine has to be respected and worked on. This means that every year is different, so there is no recipe for winemaking, so I'm not even able to tell you – this is how we do it. Every year is different, every year the oenologist, it is his job to follow the wine in its evolution, the various phases. So there are vintages where grapes are perfect, where you can allow yourself not to use sulphur dioxide during the harvest, you can allow spontaneous fermentations to start (...) You have to take into consideration that the world is not all black and white.”
(12/02/2009)*

Severino, winemaker.

“[People ask me] how can you say you make organic wine with all the stainless steel vats, with controlled temperatures...? Yes, I make organic wine. (...) [B]ecause in my opinion organic production is ninety percent about the agricultural work. (...) [For me to work in the organic method is] to look for a middle way between quality and ethics, and a natural way of working, that is not exaggerating with the use of machinery, technology, not using absurd systems to obtain always the best quality but using machines that cost God knows how much or devastating completely the original product you had. (...) [Y]ou must not forget about the market; if you make an undrinkable product the market will not buy it. However, first of all you have to make a product which respects your way of life. (...) I also hope that I am like this, that what I do in the cantina reflects what I've got in my head.” (28/10/2008)

¹ Oenologist: a specialist in winemaking educated in oenology, the science of winemaking.

1.1 Introduction

Every wine opens up a story. In the material substance of wine the work of plants, chemicals, microbes, and people is brought together. Unpacking the story of wine means asking questions about the materials which contributed to its becoming, and the motivations of winemakers who worked to draw them together. Most importantly, it means asking questions about that space of tensions between capacities of things and motivations of people. Behind every wine is a socio-material story, a story of skills, ethics, and personal ambitions, and of their constructive interaction with the world of matter.

As the quotes opening this chapter suggest, for the organic winemakers whose work I discuss in this thesis making wine is more than an economic process of value creation. Engaging with the unpredictable world of agricultural nature through growing grapes and fermenting wines is also a process of making ethical distinctions. Engaged in a constant to-and-fro with agricultural nature on the one hand, and wine markets on the other, organic winemakers work in an ethically charged space of tensions between 'nature' and 'culture', between the agency of vines and yeasts they work with, and the perceived needs of the markets they need to survive.

Wine, the winemakers cited above remind us, is an agricultural product. Its making is influenced by the same processes of growth, maturation, and decay as all other agricultural goods, and so wine can be seen to belong to the sphere of 'nature', as an 'expression' of the local biological and environmental processes of its creation. At the same time, wine is a product heavily worked on. It is through enrolling (bio)chemical and mechanical aids that winemakers are able to create a delicious alcoholic drink from the raw sweet juice of grapes. This situates wine in the sphere of artifice, or 'culture', and designates wine as a product created for a 'social' purpose, in order to be sold. But neither of these purified spheres of action and intention is comfortable for the winemakers quoted above, as wine is neither purely natural nor purely cultural. Similarly, it is neither completely of the winemaker and their land, nor is it completely of the market and its demands. Making organic wine, I demonstrate in this thesis, needs to be seen as a socio-material sphere of ongoing negotiation, in which practices which create culture and those which create nature, and practices which (re)produce markets and those which (re)produce ethical standpoints, are mobilised to stabilise an uneasy space in the middle – an 'organic' alcoholic drink.

Through an exploration of organic wine production in Italy, in this thesis I propose a move beyond the dominant mode of analysis of wines (and of agri-food products more generally) as either social constructs mobilised in the creation of meaning, or as passive commodities moved along networks of provision. To achieve this, I draw on the work done in actor-network theory, and post-humanism more widely, and demonstrate how the simultaneously market-oriented and ethically-informed activities of human workers in vineyards and wineries both depend on and seek to influence the materials they work with (the vines, bacteria, yeasts, and chemicals). This materials-centred understanding of how agri-food products are made and sold moves away from traditional understandings of agricultural production, which have dominated agri-food studies, as an exercise

of human internationality on mute 'nature', and proposes a post-humanist understanding of agri-food.

In this thesis, I argue that both action and meaning in agri-food need to be seen as distributed and relational achievements, and I discuss the consequences of this change in perspective to our understanding of skill, ethics, and markets in the making of organic wines, and agri-food products more generally. I demonstrate that an important consequence of applying the post-humanist perspective is the uncovering of the ongoing labour particular materials and practices do in reproducing and changing the seemingly stable 'structures' of organic wine production practices and markets. At the same time, this thesis contributes to the post-humanist field by applying the theoretical insights of post-humanist scholars in a high-risk and high-tension context of making things for sale. The spaces of agri-food production, I demonstrate in this thesis, offer a fertile ground for an engagement with the wealth of theoretical observations in post-humanist studies. The sometimes violent and always uncertain interplay of heterogeneous agents in the context of agri-food highlights the importance of understanding materialities as processes rather than fixed entities, and acknowledging indeterminacy as an inherent element of dealing with temporarily evolving materials.

In the thesis, I thus explore how a post-humanist perspective can help us understand the rationalities and practices of organic wine production, and the ethical dimension of goal-oriented human-nonhuman relations. I demonstrate how post-humanism can help us understand vitality of matter in the worlds of production as more than resource for or obstacle to human intentionality, and thus make better sense of how producers deal with uncertainty as an inherent characteristic of organic winemaking. In exploring the every-day practices of production involving working humans and non-humans, I highlight their reflexive and ethical relationships, and trace how these relationships are in turn modified and further modify productive, managerial and sales practices. In following the lively materials involved in the making of organic wine, I explore the opportunities given and the dangers posed by these nonhumans in production contexts, and their consequent impacts on practices of production and sales.

Applying Mol's (2002) practice-centred ethnography approach, this thesis explores how taking material 'things', not as inert objects, but as distributed effects, as a starting point of inquiry can change and enrich our understanding of agri-food production in the context of organic winemaking and beyond. Across social sciences examining the productive relations between that sphere of activity we call 'society', and that we call 'nature' (or 'the material world') has been a key theme of inquiry. Increasingly it has been suggested that dividing the world of action into two distinct realms is not analytically or indeed ethically viable, and that the material heterogeneity of practices which enact the world of humans (and others) has to be acknowledged. A focus on materiality has recently been seen as a fruitful way of engaging with the world in its specificity and richness, and without falling back to external structures of meaning to 'explain away' the local entanglements. However, this approach has so far been rarely applied to the field of agri-food production.² In this

² Please see literature review section 2.5.3 for some key exceptions.

thesis, and in keeping with actor-network theory's symmetry principle, I take the heterogeneous character of action as a theoretical and empirical starting point, and explore how particular nonhumans are made and make themselves significant in the practices of organic wine production. I also explore how their materiality *matters*, both to organic wine production and sales, and to the relational ethics of production enacted and lived by the human actors.

1.1.1 "Making sense": Modes of ordering and practices of making organic wine

Please see video 1: "A five minute visual tour of some practices of making organic wine."

It is only in retrospect, and only on the surface that winemaking processes take on a semblance of order and directionality: from grape growing to harvest to fermentation to maturation to bottling to sale; from vineyards to wineries to markets. As the short video opening this section suggests, the real time, real place engagement with these processes and practices brings out their complexity, their diversity, and their messiness. It brings out the obstinacy and creativity of materials, and the overwhelming richness of practice. In real time, the materials worked with – plants, bacteria, chemicals – are never fully known, but they are nonetheless worked with. They are tinkered and interacted with, and adapted and responded to. In real time, the goals informing the practice – the growing of particular type of grapes, the making of a particular type of wine – are temporarily emergent (Pickering 1995) from the material entanglements. But this thesis is not just about the celebration of heterogeneous complexity and messiness of action. It also tries, in a humble way, to make sense of it.

In this thesis I employ Mol's (2002) practice-focused methodology to explore how human-nonhuman entanglements matter in goal-oriented processes of organic wine production. Using the ethnographic methods of participant observation, auto-ethnography, and interviews, I participated in and followed the practices of organic vine growing and winemaking at multiple sites in Northern Italy. With my human wine-making participants, I tried to make sense of their methods for coping with the unpredictable, risky, and creative material agency of the world of their practice. Specifically, I became interested in how materials were being interacted with in practices, how their characteristics were either enrolled and utilised or struggled with in practice, and how the ethical dimension of these practices was managed. The crises and struggles brought about by the vital materiality producers sought to enrol in the making of wine have made me ask questions about directionality of those practices. In my attempts to make sense of the complexity and diversity of organic winemaking, I have come to identify two principles, two sources of tension which were felt in how winemaking was both done and talked about, and which were made material in the bodies of vines and wines. These principles emerged from and were enacted through the field of practice. While they were in no way the only sources of meaning to be found, they emerged most forcefully from the ethnographic material due to their ubiquity in practices from soil tilling to wine bottling, the palpable competition between them, as well as their importance to my participants. Drawing on Law (1994), and his later applications and elaborations,

especially by Hinchliffe (2007) and Mol (2002), I chose to call these sources of tension modes of ordering.³

Modes of ordering are forms of coordination which emerge from and are enacted through the fields of practice. For John Law, modes of ordering are 'recurring patterns embodied within, witnessed by, generated in and reproduced as part of the ordering of human and non-human relations.' (1994: 83). These orderings are not imposed on the field of practice from the outside, nor are they inevitable or historically necessary (Hinchliffe 2007: 260). They are utterly material, as modes of ordering have neither a thinker nor an actor at their centre, individuals being ordered along with them (Mol 2002: 68). Modes of ordering are therefore ordering attempts, not orders. They are performed, embodied, and told in different materials, actions and discourses. Modes of ordering are multiple and performative through and through, they interact and change in their performance, and the relations between them can be supportive, but they can also be antagonistic (Law 1994: 95). They are neither homogenous, nor enforced 'from above', but this does not mean they are not powerful.

Two dominant modes of ordering materials, practices and discourses can be seen to emerge from the ethnographic data presented in this thesis. The first mode of ordering I propose to call, after Çalışkan and Callon (2010), *pacification*. Whether at vineyards or at wineries, at industrial or artisan sites, during vine pruning or fermentation, wine producers were responding to the sales imperative which is the ultimate goal of wine production. As the quotes opening this introductory chapter illustrate, the Market, understood as a multiplicity of existing practices linked with exchange and money-making, and their materialisations in infrastructures, organisations, certifications, modes of conduct and other market devices, was both already present, and always enacted anew in the practices of making wine. The response of winemakers to the sales imperative was materialised in their engagements with the materials of winemaking, from vines to yeasts to machines. A key element of the alignment of winemaking practices with the exigencies of the sale imperative was creating arrangements which enabled 'qualculation', that is a disentanglement from the context of production, and an establishing of qualities (Callon and Law 2005). Çalışkan and Callon (2010) demonstrate that in order for goods (such as wines) to become tradable in the marketplace, their characteristics have to be rendered as stable and as knowable as possible to all parties in the transaction. This requires minimising the chance that goods should express unexpected qualities. The agency of goods is thus pacified in the market context, for passivity of goods is necessary if market agents are to 'form expectations, make plans, stabilise their preferences and undertake calculation' (*ibid*: 5). Crucially, pacification does not just happen at the point of sale, but involves all practices of creating a good and making it available for sale. In organic winemaking the pacification mode of ordering, I demonstrate, frequently comes into conflict with the second powerful mode of ordering.

³ It is worth noting that Law's 'modes of ordering' have already been applied in the context of agri-food studies in an article on fair-trade coffee markets by Whatmore and Thorne (1997), and beef consumption by Stassart and Whatmore (2003). These studies are further discussed in the following chapter.

The second mode of ordering of organic winemaking practices and discourses I propose to call, after Hinchliffe (2007) *making space for nature*. Nature is a complex, contested, and, most importantly, ethically charged concept in organic vitiviniculture. Whether large or small scale, selling at supermarkets or boutiques, self-taught or oenology-trained, all organic wine producers in my research felt a need to situate their production practices within the moral and moralising context of 'organic', at the heart of which lies the notion of Nature as an 'independent state' (Hinchliffe 2007), a *telos* of things which needs to be preserved in and through vitivinicultural practice.⁴ Making distinctions between the 'natural' and 'not-natural' (spaces, practices, materials) is a constant element of organic winemaking practice and discourse. What 'is' and what 'is not' Nature is expressed in and reproduced through certifications, marketing discourses, winemaking traditions, and other practices. The importance of positioning one's practices with regards to Nature is even more intense in the case of organic winemaking than it may be with other organic products. That is due to the traditional focus in winemaking on sensitive and long-term relations between humans and natural processes and materials, epitomised by the term *terroir*.⁵

In this thesis, I do not enquire about wine producers' understandings of Nature as a concept, nor about its relevance to their 'versions' of organic production, a topic which has been already well explored in different organic agri-food contexts (Kaltoft 1999, 2001, Verhoog 2003, Vos 2000). Instead, and without dissecting the 'beliefs' and 'ethical biographies' of producers, I demonstrate how Nature as an ethical concept is responded to and created through practices, and discourses. I demonstrate that in organic winemaking multiple natures are made in and through practice, especially through acts of care and withdrawal. Crucially, the maintenance of those natures requires no less labour than the maintenance of calculability. This ongoing creation of spaces for nature, I show, has important consequences for the management of spaces, products and processes, as this mode of ordering can come into conflict with the market-oriented pacification imperative.

These two powerful and distinct modes of ordering, pacification and making space for nature, are made real through the practices, discourses and materials of organic winemaking. Importantly, the two modes perform very different ontological politics (Mol 2002), with pacification working towards predictability and standardisation, and making space for nature working towards unpredictability and diversification. This tension between vital materialities and human intentionality, and between the two ordering modes, is never resolved. It is a productive tension, and as a result both modes of ordering are crucial to the creation of the worlds of organic wine. Both modes of ordering, I argue, are necessary and central, and it is only through continuous labour of enrolling, responding to, and tinkering with vital materialities that organic wine producers succeed at keeping this space of tensions from falling apart. This leads to sometimes antagonistic, and always complex relations between the two modes, and creates conflicts so

⁴ *Telos* is an Aristotelian term denoting the fundamental nature of a thing (Ridder 2007).

⁵ *Terroir* is usually defined as the expression of the physical characteristics such as soil, weather, and microclimate, in the organoleptic characteristics of the wine (organoleptic means relating to perception by the senses such as taste, smell, look and feel). *Terroir* is thus an inherently spatialising (and political), term, linking particular wines with the locales of their production.

powerful some winemakers chose to drop out of winemaking all together. In this thesis, I explore the challenges of making organic wine in this space of tensions.

Modes of ordering, Law (1994) stresses, are both 'out there', being performed in the field, and exist as categories devised by the ethnographer to make sense of the messy realities of practice. In the ethnographic chapters of this thesis (chapter 4-7), I have organised the material to enable the modes of ordering to come forward as a helpful framing of the messy world of practice. Thus the text of this thesis is not aimed to simply demonstrate the enactments and materialisations of the two modes of ordering. It remains, first and foremost, a materials-centred ethnography of practices of making organic wine. In the ethnographic chapters (chapter 4-7) I demonstrate what this onto-analytical position can tell us about the messy business of plant management, wine production, and market performance. The modes of ordering are used as helpful framing devices which allow the reader to move through the complex landscapes of heterogeneous action, and which also provide analytical insights into the tensions which play themselves out in the making of organic wine.

1.1.2 But why organic wine?

Why should this particular sector of agri-food production be chosen to explore the consequential materiality involved in the production of edible and drinkable products? All agricultural activities depend on capturing the vital agency of the material world of nature, and their use for the benefit of humans. And, as I suggest in the concluding chapter of this thesis, the dominant modes of ordering I describe, of making spaces for nature, and of pacification, or, more generally, of creating naturalness and of creating calculability, can be perceived in all areas of agri-food production. However, organic winemaking is an excellent context in which to study the issue of vivacity of matter and the material world, and the effects it has on the socio-material networks of production and sales. The reason is that in the worlds of wine the analysis, questioning, and justification of practice has always been at the heart of economic and cultural value production.

The worlds of wine are inherently obsessed with matter, its effects, and its characteristics. The key referent of the industry is the term *terroir*, which epitomises the connection between human and natural activities brought together in the form of a drinkable product. The economic value and cultural prestige which depend on the successful capture and promotion of this connection means that producers, consumers, sellers, and critics alike are all deeply involved in the questioning, analysis, and appraisal of production processes, and the resulting materialities of wine. While growing carrots or apples can involve similar assessments, wine producers have a long history, and recently even a branch of science, oenology, on which to draw in their inquiries and analysis, making the disputed matter(s) of wine readily accessible to ethnographic inquiry.

This obsessive controlling and justification of practices and methods is further exacerbated in the context of organic winemaking. Producers need to reflect on and justify their practices not only in the context of organic certification, but also in the moral and moralising context of an organic market, where they have to be able to demonstrate that their practices respond to the imperative

of making spaces for nature. Thus in the worlds of wine, matter is always a focus of attention, as the temporal processes of materialisation such as growth, ripening, spoiling, fermentation, maturation, and oxidation are both the sources of greatest value and the greatest risk for organic winemakers.

1.2 Thesis structure

There are two principles underlying the structure of this thesis. Firstly, in the first three ethnographic chapters (Chapters Four to Six) I focus in turn on three particular material non-humans which emerged as powerful agents, the effects of which resounded strongly within the networks of practice of organic winemaking. I successively discuss the work practices performed with vines (Chapter Three), yeasts (Chapter Four), and sulphur dioxide (Chapter Five). I follow and examine the practices which centre on capturing the productive agency of these non-humans (Pickering 1995), on managing their vital material qualities, and on dealing with their ethical weight. In these chapters, I also draw attention to the emergence of the two modes of ordering found in organic winemaking as they are expressed and performed in the practices involving these non-humans, with particular attention to the moments of conflict and rupture. In the fourth ethnographic chapter (Chapter Seven), I bring the effects of these non-human agencies together in the form of finished wine ready to be sold. In this chapter I look back to the processes of production, and I consider how the conflict between the two modes of ordering is managed in the context of the marketisation of the finished product.⁶

Following particular non-humans and their effects, and the tracing of the emerging modes of ordering material practice, is the first principle organising the ethnographic chapters. Additionally, and at the same time, the organisation of this thesis is informed by the yearly cycle of wine making practices. While this thesis does not 'follow the thing' (Appadurai 1988) *sensum stricte*, the organisation of chapters from vine management to fermentation and maturation to sale does aim to convey the temporal process of creating organic wines.

In the following chapter (Chapter Two) I situate the empirical and theoretical themes of this thesis in the existing literature. I suggest that while scholars in the field of agri-food have made important contributions to the understanding of food systems, they have been struggling to engage with the materiality of agri-food production as neither deterministic nor constructed, but as both significant and consequential. I further critically engage with the literature in the post-humanist canon, and argue that while post-humanist scholars have made excellent advances in the theorisation of

⁶ Çalişkan and Callon (2010) define marketisation as 'the entirety of efforts aimed at describing, analysing and making intelligible the shape, constitution and dynamics of a market socio-technical arrangement' (3). This includes the labour of market actors such as producers (for example in later chapters discuss the labour of establishing the qualities of wines in line with the expectations of particular markets, and, when this fails, the development of market associations which use alternative qualification mechanisms). In this thesis I prefer to use 'marketisation' rather than simply 'sales' to suggest the diversity of processes which goes into making a product such as a wine available to the mechanisms of monetary exchange. Please see chapter two section 2.7 for a full discussion.

human-nonhuman action, post-humanism has much to gain from the, hitherto scarce, empirical engagement with more risky and dangerous spaces of human-nonhuman relations than homes and other 'domesticated' spaces. I then introduce the key literatures which inform my understanding of human-nonhuman action in organic winemaking practice as temporarily emergent, inherently ethical, and informed by the exigencies of the market (understood, after Callon et al. (2002), as both performed and performative).

In Chapter Three, I introduce the methodological consequences and challenges of following organic winemaking practices and non-human actors across multiple sites. Drawing on actor-network theory approaches, I suggest that the first task of a post-humanist ethnographer with an interest in materiality and practice is creating an account of the visible (Pickering 2001), asking questions about what makes productive networks 'work'. That means charting the to-and-fro of human and nonhuman agency, a task best accomplished through the classic methods of long-term participant observation and interview methods. I further examine the methodological consequences of employing Annemarie Mol's (2002) praxiography, and the consequent following of things-in-practices rather than things-in-places. I demonstrate that the differing material characteristics of the non-humans which I discuss in this thesis necessitated radically different methods of engagement. While in the case of vines both visual methods and auto-ethnography allowed me to appreciate the embodied and sensual character of skilled action in vineyards, in the case of largely invisible entities of yeast and sulphur dioxide different methods had to be employed. In the case of these non-human agents, tracing ruptures in the habitual performance of action (Latour 2005), and conflicts between competing performances of reality (Mol 2002) were useful events through which to explore the actor-networks of dependencies, and the ethical and onto-political dimensions of performative action.

In the first ethnographic chapter (Chapter Four), I lay the groundwork for the subsequent explorations of the relational materialities of organic wine production by focusing on work practices in vineyards. In this account, I seek to move beyond the exploration of agricultural nature in rural research as either 'external, inorganic medium, acted upon and manipulated by human artifice' (Goodman 1999:20), or as symbolic and/or cultural capital accumulated by farmers (see for example Grey 1998, Hunt 2010, Yarwood and Evans 2001). I instead attempt to re-write the spaces of grape-growing work as material and goal-oriented but also sensitive encounters between human and plant bodies. My focus on this inter-corporeality leads me to critically engage with the existing literature on skilled practice performance, and I draw attention to the crucial but usually omitted role materials play in the acquisition of skilled practice. In this chapter, I begin to establish the spaces of vineyards and wineries as spaces of work, populated by working mind-bodies and vital materialities of 'things'. Focusing on the becoming of vineyard 'taskscape' (Ingold 2000), and the processes of 'tuning' (Pickering 1995), I explore the indeterminacy and uncertainty inherent in attempting productive captures of non-human agency in organic wine production.

While the first ethnographic chapter demonstrates what a focus on materiality can do to our understandings of knowledge and skill in agri-food, in the following chapter (Chapter Five) I take a material-focused and praxiological approach to understanding ethics of agri-food production.

Focusing on the microorganism vital for the production of wine, the alcohol-making yeast, I explore the ethics of organic wine production as relationally materialist, expressed in and emergent from practices of production. This signals a move from the dominant understandings of ethics as adherence to abstract ethical codes, and towards ethics which emerges in relation to transcendental ethical concepts, such as Nature, as well as sensitive encounters with the material world, and which is intertwined with the work of maintaining personal ethical identities (Holloway 2002). By focusing on practice, I bring into focus the mechanisms through which ethics is made rather than applied. I demonstrate how, in contrast to oenological winemaking practices, in artisan winemaking yeast can acquire a status of an ethical subject, a 'matter of concern' rather than 'a matter of fact' (Latour 2005). I acknowledge the centrality of the ethical concept of Nature to the creation of those relational materialist ethics, and I explore how creating 'spaces for nature' in organic winemaking emerges as a powerful and ethically charged mode of ordering (Law 1994) of people, discourses, materials and practices.

In Chapter Five I demonstrate that withholding intervention is a key part of the practices of making space for nature. I further show that this enactment of ethics can result in wines the vitality of which threatens the stability of marketisation networks, and which thus enter into conflict with the other dominant mode of ordering of organic winemaking practices, that of pacification. This conflict is explored in Chapter Six, in which I focus on sulphur dioxide (SO₂) as a multiple object (Mol 2002) which participates in both modes of ordering. I argue that the multiple performances of SO₂ – as a bio-chemical stabiliser of wines, as an enabler of marketisation, and as an ethically uncomfortable presence – are all crucial to the existence of organic wine production and markets. At the same time, these performances are not compatible. Particularly, I argue that the ethical weight of SO₂ as a not-natural material constantly threatens organic wine markets with closure. As a result, SO₂ must remain black-boxed – present, but not questioned – for the organic wine markets to exist. I illustrate this thesis by examining the case of a failed pan-European organic wine legislative framework. I argue the legislative framework failed because it was based on the opening of the black box of SO₂. The multiple practices of SO₂ therefore express the key tension at the heart of the worlds of organic wine, a tension between the practices which aim at creating a world of pacified, calculable goods, and the practices which aim to cultivate a space for the unpredictable and creative nature.

This irresolvable and necessary friction between the two modes of ordering is further explored in Chapter Seven, where I demonstrate different strategies employed by organic winemakers to navigate this space of tensions and succeed in placing their wines on the market. I engage critically with the work of Çalışkan and Callon (2010, 2011), arguing that not all goods have to be prevented from 'offering multiple suggestions of their own value' in order to enter into the sphere of markets (an argument developed by Gregson et al. 2012 in the context of recycling). I focus on 'lively' organic wines, that is wines which vary from vintage to vintage, and even from batch to batch, and which result from the practices of making space for nature at production level. The material characteristics of these 'lively' wines do not 'evolve predictably', and as a result pose a challenge to qualification trials which Callon and colleagues consider as central mechanisms in the organisation of economies of qualities. Establishing and maintaining marketisation networks for alternative,

lively organic wines, I argue, requires investment on the part of producers and consumers alike. I demonstrate the work of producers in trying to create stable relationships between their wines and their consumers, relationships which are not (only) rooted in 'stories' about the products, but, more importantly, nourish an openness to the unexpected and challenging tastes and structures of the wines consumed. Together, the work of lively wines, of motivated producers, and of interested consumers, I argue, can result in a collective performance of alternative wine markets where uncertainty becomes an accepted part of the game.

In Chapter Eight, I critically assess the contribution of this thesis to the current understandings of materiality, and to the field of agri-food studies. I argue that an understanding of agri-food production as a process of material transformation, suggested in this thesis, brings into focus the temporal nature of materials. This in turn highlights the need for analytical engagement with materials not as fixed essences, but as things-in-processes. Furthermore, this temporal character of materials invites a recognition that situations of indeterminacy (in agri-food and other production contexts) are not singular instances of 'loss of control', but an inherent element of dealing with temporarily evolving world of 'things'.

My analysis of the ways this inherent indeterminacy is both known (Hinchliffe 2001), and practically dealt with in the production and marketisation of organic wines constitutes the main contribution of this thesis to the field of agri-food, and opens up fruitful areas for future research. In the thesis I discuss the impact of the inherent indeterminacy of the material world on how agricultural work is learnt, on how the ethics of agri-food production are developed and expressed, and on how the architecture of markets for agri-food products changes over time. Adopting materials-centred perspectives in these areas of agri-food research can have a radical potential. In Chapter Eight I suggest ways in which further research into agri-food production as a process of material transformation can suggest more socially and environmentally generous ways of producing agri-food in a world of lively materiality.