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Leadership and Employee Engagement in the New Zealand  
Dairy Farming Industry - Is there a Link with Milk Production  
Performance?

A thesis prepared in partial fulfilment of the requirements for the degree of

Master of Arts

in

Psychology

at Massey University, Manawatu,

New Zealand.

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2017

## ABSTRACT

This study sought to investigate which leadership styles were more effective at increasing employee engagement and/or overall milk production performance in the context of the New Zealand (NZ) dairy farming industry. This study also sought to investigate whether psychological needs satisfaction mediated the relationships between leadership styles and employee engagement. A cross-sectional self-report survey was used to collect data. Results indicated that transformational-contingent reward leadership was related to higher levels of employee engagement, while passive-avoidant leadership, management by exception active, and destructive leadership styles were all negatively related to employee engagement. Satisfaction of the need for autonomy was found to fully mediate the relationship between transformational-contingent reward leadership and employee engagement, between passive-avoidant leadership and employee engagement, and also between destructive leadership and employee engagement. None of the independent variables were found to have significant relationships with overall milk production performance. Theoretical and practical implications for effective leadership styles are discussed along with recommendations for future research.

## ACKNOWLEDGEMENTS

The author wishes to thank the following:

My supervisor Dr Dianne Gardner for her enormous patience, assistance, and kind approach.

The helpful support of Dr Harvey Jones for programming the survey onto the Qualtrics system, for his responsiveness, and helpfulness.

To Federated Farmers, New Zealand Young Farmers, Farmers Weekly, and NZ Farming for helping distribute the online link to the survey.

Dr Patrick Aldwell for his expertise, advice, and support in distributing my survey.

All of those who gave their time to complete the survey and contribute to this research.

Most importantly thank you to my amazing husband Jason Rolfe for his unwavering support, for cooking the majority of my meals in the past few months, for the pep talks, the sounding board sessions, the technical farming advice, and the enthusiasm and interest he paid in this research.

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## CHAPTER 1: INTRODUCTION

Leadership has been identified as one of the most significant contributors to a number of organisational outcomes at work, both positive and negative (Graham, 1995; Mumford, 2010). The relationships between leadership, employee engagement and performance have been well researched in many industries, and the literature has consistently shown significant relationships between all factors, with particular leadership styles appearing as more effective for encouraging employee engagement and performance than others. However, no research to date has looked at these relationships in the New Zealand (NZ) dairy farming context. Therefore, it is the aim of this research to identify which leadership styles are positively related to employee engagement and performance, and which leadership styles may be detrimental to engagement and performance. To further investigate these relationships, in line with self-determination theory the current research investigates whether satisfaction of the needs for autonomy, relatedness, and competence mediate the relationships between different leadership styles and employee engagement. Research has shown that leadership behaviours that create an environment that satisfies their followers' needs for autonomy, relatedness, and competence, lead to higher levels of employee engagement (Deci & Ryan, 2000).

Milk production performance is a very important factor for all NZ dairy farmers. Dairy farm owners and variable order sharemilkers' main source of income is from the pay-out they receive per kilogram of milk solids they produce. The term 'variable order sharemilker' refers to any sharemilking situation where the sharemilker has an agreed percentage split of income and expenses. A wide range of contracts in NZ exist, with a range from 18% to 29% being most common (Dairy NZ, no date). Therefore, the more milk solids a farm produces, or the more efficiently it produces milk solids, the more income the business will receive. As this is an important outcome for NZ dairy farmers, this study will aim to identify whether leadership has a direct or indirect (via employee engagement) relationship with milk production performance. The basic premise of this study is that effective

leadership behaviours that encourage high levels of employee engagement will result in employees who perform better in their roles, which ultimately leads to higher milk production performance.

The NZ dairy industry is one of the biggest economic contributors to the country. For such a significant industry, there has been very little research looking at the effects of leadership and employee engagement on organisational outcomes, in NZ or internationally.

The NZ dairy industry is projected to continue to grow (Tipples, Rawlinson, & Greenhalgh, 2013), however, it currently faces a number of human resource related issues that could impede this growth, such as a labour shortage (Tipples & Bewsell, 2010), a high rate of turnover (Dairy NZ, 2013), a high accident rate (Worksafe NZ, no date), and high rates of depression and suicide compared to the general population (Federated Farmers, no date). While it is not the aim of this study to address these issues, it is acknowledged that leadership can be linked to a number of organisational outcomes which can impact some of these issues. For example, an effective leader can design jobs and treat employees in a way that increases job satisfaction (Judge & Piccolo, 2004), employee engagement (Carasco-Saul, Kim & Kim, 2015), performance (Judge & Piccolo, 2004), or self-esteem, and self-efficacy (Halsbesleben, 2010), which can indirectly impact a person's intention to stay or leave the industry, contributing to the overall turnover rate. This is a simple example which does not address the other confounding factors involved in these relationships, but does serve to make the point that research into leadership is important in order to understand the impact it has on employees and organisational success. By looking at which leadership behaviours are most effective at encouraging employee engagement and performance, this research may incidentally impact some of the human resource related issues currently faced by the NZ dairy farming industry, as well as potentially contribute to better performing farms.

Dairy farming in NZ is a unique industry, and the nature of work in this industry is unlike any other. For many, dairy farming is a family business, a lifestyle choice and a rewarding career path. However, the nature of dairy farming does have its challenges and unique characteristics. Most dairy farm employees live on-farm, they are highly committed to the farm and milk their cows in the early

hours of the morning and again in the early evening, seven days a week. They work long hours and long rosters, they work in all weather conditions, the work is very labour intensive, and business success can be effected by a number of uncontrollable external factors such as the weather and milk pay out prices. In the wider NZ farming industry, as well as in the dairy industry, farm owners typically fill the most senior managerial or leadership position on farms. This creates a unique employment structure compared to many other industries, and unique leadership considerations. A potential issue with this structure is that the owners are not selected as leaders for their leadership skills and abilities, but are placed in a position of leadership because they own the farm. This implies that some farmers nationwide and internationally may be ill-equipped for the interpersonal and managerial aspects of their roles, which can have a range of negative effects on employees, farms, and the wider farming industry nationwide. There is also the added risk that this spreads outside the farm gate to major agricultural businesses whose governance boards are run by these same farmer directors.

The unique structure of the farming industry may also see some leadership advantages. For example, destructive leadership behaviours may be less common as farm owners have vested interests in and commitment to the success of their business; many farms involve the efforts of and employ family members, and the long hours, the living on farm, and the sometimes isolated location of farms could allow more opportunities for leaders to form meaningful relationships with their employees. These characteristics can have a major impact on the people employed in the industry, both positively and negatively, therefore, it is important to investigate what leadership styles are most effective in this unique context, compared to other, more well researched, industries.

Overall, this study may have practical application to NZ and international dairy farming businesses and may help improve the understanding of the importance of leadership and employee engagement to the overall success of a farming business. This study may also indirectly contribute to the promotion of better employment practices, training and development of leaders and employees, selection of leaders and employees, succession planning, workplace culture, employee wellbeing, and reduction of workplace accidents.

## CHAPTER 2: LITERATURE REVIEW

### THE NEW ZEALAND DAIRY INDUSTRY

The NZ dairy industry produces 3% of the entire world's milk supply, and in the 2015-16 season contributed \$12.2 billion in export revenue (Dairy NZ, 2016). In order to achieve this the NZ dairy industry employs approximately 34,700 people on farms (excluding farm business owners), with a further 14,410 people employed in processing and wholesaling (Dairy NZ, 2016).

Dairy farms in NZ are getting bigger. Taylor, van der Sande, and Douglas (2009) reported that there has been a marked growth in the past two decades, with a 213% increase in herd size/number of cows per herd. But that there has been no corresponding increase in the total number of people employed in the industry. Technology may have created some efficiencies, however, labour data show that people are also working harder and longer hours than ever before (Taylor et al., 2009).

The NZ dairy industry is subject to significant economic turmoil which can greatly impact the people working in the industry. Dairy commodities are among the most volatile commodities in the world, with whole milk powder prices having a volatility percentage of over 40% compared with commodities such as oil at 22% and sugar at 26% (Fonterra, 2015). Ninety-five percent of New Zealand's milk produce is exported, therefore, the industry is heavily impacted by this economic volatility (Dairy Companies Association of New Zealand, no date). Historically, and in recent years this volatility has seen years of prosperity followed closely by periods of adjustment and scarcity. Most significantly the 2013/14 season saw a record high pay-out from New Zealand's largest milk producer, Fonterra, at an average of \$8.50 per kilogram of milk solids (kgMS) followed by a significant drop to averages of \$4.65 and \$4.30 kgMS in the following 2014/15 and 2015/16 seasons (Fonterra, 2016).

Due to its unique context and history, the NZ dairy industry is currently facing a number of employment related issues, which Wilson and Tipples (2008) deemed to be a human resource crisis. Some of these issues include a high turnover rate, a serious labour shortage, a concerning rate of depression and suicide, and a high accident and death rate compared to other industries.

According to the 2010 Linked Employer-Employee Data, the combined agriculture, forestry and fishing industries had the highest worker turnover rate at 28.5% (Statistics NZ, 2010). This was significantly higher than the average turnover rate across all other industries in NZ at 14.6% (Statistics NZ, 2010). While this covers more than just the dairy farming sector, the dairy industry alone sees approximately 11,400 jobs being vacated and filled annually, and the average period of tenure for farm staff is only 1.6 years (Dairy NZ, 2013). Similarly, Taylor et al. (2009) reported that one third of dairy industry staff move out of the industry each year (leaving the industry completely, not just moving to another farm), and the average length of service is less than one year. Considering there are 34,700 people employed in the NZ dairy industry, 11,400 jobs being vacated per year is an extremely high number. The estimated cost of this turnover to the dairy industry, not including the loss of experience, is \$146 million (Dairy NZ, 2013).

A high turnover of staff combined with substantial growth and demand for dairy products has resulted in a labour shortage. Tipples et al. (2013) highlighted that the substantial growth in the demand for food products has provided an increase in the number of employment opportunities. Despite this, the NZ dairy industry has struggled to attract and retain enough skilled staff to meet this need (Pomeroy, 2015). Tipples and Bewsell (2010) predict that this labour shortage is likely to continue and compound, particularly in the South Island where expansion is concentrated.

The aging workforce which affects most industries will also impact the dairy industry and will be compounded by fewer young people entering the industry (Taylor et al, 2009). Dairy NZ (2013) has recognised that there are fewer school leavers and university graduates pursuing careers in the agricultural industries. They suggest that this may be due to the demanding work, long hours, low pay and diminished hopes of farm ownership. Taylor et al. (2009) report that the dairy and wider farming industry has a reputation for treating employees poorly, which may also discourage people from entering the industry.

In an attempt to address this labour shortage, many farmers have turned to immigrant labour, mainly from the Philippines, which now sees immigrants making up 23% of all dairy farm staff

(Dairy NZ, 2013). Poulter and Sayers (2015) argue that skilled migrant labour is now essential to the sustainability and global competitiveness of the industry. They also argue that as the competition for skilled migrant labour intensifies, human resource management (HRM) practices within the NZ dairy industry will need to be of the highest standard and workplaces will need to be more attractive than those in alternative host nations.

Whilst good HRM practices are essential to attract and retain skilled migrant workers, the same applies to attracting and retaining skilled New Zealand workers. Poulter and Sayers' (2015) suggestion that working conditions need to be better than the conditions of the immigrants' host countries does not recognise that the NZ farming industry also needs to maintain working conditions which are competitive with those in other industries within NZ, if they want to improve the number of school leavers entering the industry.

Another issue faced by the farming sector is a high rate of suicide and depression, compared to the general population (Federated Farmers, no date). This may arguably be a result of the pressures inherent to the industry. While farming can be a desirable lifestyle choice for many, it is also subject to a number of pressures such as isolation, uncontrollable effects of the environment and weather, intensive labour, long work hours, and the volatile nature of the economic market.

The NZ dairy and wider farming industries also face a high number of accidents and work related deaths. Dairy farming is associated with approximately 1,200 Accident Compensation Corporation (ACC) claims per year. On the basis of a workforce of approximately 34,700 people, this suggests an injury rate of three point five percent, almost three times the average rate across all New Zealand industries (Worksafe NZ, no date). In 2014, there were 20 people who lost their lives on farms, and a total of 120 people have died on farms between 2008 and 2014 (Worksafe NZ, no date).

It is clear that there is a number of important issues faced by the industry, which impact the people in the industry significantly. While many factors influence these statistics, leadership is likely to be a key component, as it is the leaders who have the most influence on the ways in which jobs are designed and the way in which people are treated. Currently, there is no empirical research

investigating leadership in this industry, in NZ or internationally, therefore the present study will attempt to identify which leadership styles are related to employee engagement and farm milk production, outcomes which are key to the success of the individual employees, as well as the overall dairy farming businesses.

## **LEADERSHIP**

Leadership is a broad and complex concept. Yukl (1998) defines leadership as the process of mobilising the workforce towards attaining organisational goals. Another, more detailed definition is from Katz and Kahn (1978), who define the role of a leader as providing the necessary incremental information, support, and resources, over and above those provided by the formal organisation or the subordinate's environment, to ensure both subordinate satisfaction and effective performance.

The literature on leadership has developed exponentially and resulted in an enormous amount of research and theory. Researchers have developed many conceptualisations and theories, which have created some confusion and lack of agreement about how leadership should be conceptualised and measured. Derue, Narhgang, Wellman, and Humphrey (2011) suggest that the field is plagued by a lack of integration of leadership theories and constructs, claiming that leadership scholars create new theories of leadership without attempting to compare and contrast the validity of existing theories. Some of the main theories and advances in leadership research are summarised below.

## **HISTORY OF LEADERSHIP RESEARCH AND THEORY**

### **Great Man and Trait Theories**

One of the earliest and most prominent approaches to leadership was Thomas Carlyle's (1948) "great man" theory, which argued that leaders were born not made. The traits and characteristics of prominent leaders (e.g. Winston Churchill, Alexander the Great, and Napoleon Bonaparte) were studied and believed to define who effective leaders were and what effective leadership was (Baker, 2013). This "great man" theory resulted in a large amount of research and later evolved into the trait approach, which focussed on certain qualities and characteristics in

predicting leader effectiveness. From this approach traits such as intelligence, self-confidence, determination, integrity, and sociability were considered essential for effective leadership. In critique of this approach, Stogdill's (1948) review of the research concluded that there was no one set of traits that could consistently distinguish a leader from a non-leader, or an effective leader from an ineffective leader (Nichols, 2016). The trait approach does however, still have its relevance in research today (Baker, 2013).

### **Behavioural Theories**

In the 1950s and 1960s, following the critiques of the "great man" theory and trait approaches, behavioural theories emerged which focussed on particular behaviours in leaders and investigated their effectiveness (Mumford, 2010). Prominent research conducted at Ohio State University and the University of Michigan characterised leadership behaviours into the two broad constructs of task-focussed and relationship-focussed behaviour. Task-focussed behaviours were those in which leaders' attention was focused on task completion and on their ability to influence followers to achieve desired outcomes. Relationship-focussed behaviours were those in which leaders focused on the relationships between followers as they interacted with each other (Baker, 2013). This approach still remains relevant in research today, and has resulted in the consistent identification of particular behaviours as predictors of leadership effectiveness (Derue et al., 2011). The behavioural approach has had a significant contribution to the development of many prominent models, including Blake and Mouton's (1964) Managerial Grid, Fiedler's (1967) contingency model, and Avolio and Bass's (1991) full range model of leadership (a key theory underpinning this current research).

### **The Managerial Grid**

The Managerial Grid (later named the Leadership Grid) is a model developed during the 1950s for understanding how managers lead, and looks at how much a leader's concern is for people compared to a concern for results (Blake & Mouton, 1964). Four possible leadership behaviour styles were described by the Grid, including Impoverished Management (low concern for people and tasks), Team (high concern for people and tasks), Country Club (high concern for people, low concern for tasks)



and Authority-Compliance (low concern for people, high concern for tasks) (Baker, 2013). Based on this approach the ideal leadership style was considered to be the one in which there was an equally high concern for people as well as a high concern for tasks (Fisher, 2009).

### **Contingency Models**

Fiedler's (1967) contingency model of leader effectiveness aimed to incorporate situational variables when looking at leader effectiveness. Specifically, the model predicts that leaders who have a task orientation will be more successful in situations in which leaders have either high or low control, whereas leaders who have a relationship orientation will be more effective in situations which offer them moderate levels of control (Ayman, Chemers, & Fiedler, 1995).

### **Situational Approaches**

Further developing the contingency approach, Hersey and Blanchard (1972) introduced the situational approach which focussed on the situation, as well as considering the individual follower (Blanchard, Zigarmi, & Nelson, 1993). The situational approach proposed that effective leaders must understand their followers and apply the correct balance between directive and supportive leadership, depending on the situation. For example, a person new to an organisation may initially require more direction, then as they gain more experience they may require more support to build their commitment to the organisation, and once confident in their role they may require only low levels of direction from leaders (Baker, 2013; Lewis, Lewis, Packard, & Souflee, 2001). Not all aspects of the situational approach have been supported, but overall it has been a significant and well supported model for examining leader effectiveness (Baker, 2013).

### **The Path-Goal Approach**

In the 1970s-1980s the path-goal approach extended Fiedler's contingency approach and has been used to help explain how leaders influence their followers' motivation and behaviour towards achieving desired outcomes (House & Mitchell, 1974). Path-goal theory emphasizes expectancy theory, which suggests that people will work hard to accomplish tasks if they feel they are capable of successfully completing the task, believe their efforts will result in achieving a certain outcome, and if

they value the outcome (Baker, 2013). The role of the leader in path-goal theory is to increase follower goal attainment by making the pathway to the goal more attainable (by clarifying the goal and the pathway), by increasing the attractiveness of the goal, by reducing roadblocks and by increasing the opportunities for satisfaction along the way (House, 1996).

The research surrounding this theory has received mixed reviews (House, 1996). It has been credited for considering the situation, context, and characteristics of the individual follower as well as the leader, however, it has also received criticism due to the reliance on the leader to judge followers' needs and motivation requirements. The theory also depends on the leader understanding expectancy theory and having a good relationship with the follower, which may be complex in reality (Baker, 2013).

### **Leader-Member Exchange Theory**

A more recent approach to leadership is the relational approach which sought to provide more insight into the interactions between the leader and the follower in explaining leadership effectiveness. The predominant theory within this approach is the leader-member exchange (LMX) theory (Graen, Novak, & Sommerkamp, 1982), which looks at how the quality of the relationship between a leader and follower affect a number of outcomes. Meta-analytic research has shown that high quality relationships are associated with positive work-related outcomes, such as follower satisfaction, commitment, performance (Gerstner & Day, 1997), and organisational citizenship behaviour (Ilies, Nahrgang, & Morgeson, 2007). The nature of LMX theory means that a separation between in-groups and out-groups can occur, in which a leader forms stronger relationships with the in-group, demands more from that group and rewards them more than the out-group, which can be counter-productive (Baker, 2013). Criticisms of LMX theory are that it does not explain the possible differences between leader and member perspectives on the same relationship, or the lack of consensus among followers regarding their relationships with the same leader (Schyns & Day, 2010).

## The Full Range Model of Leadership

Despite the criticisms they have received, the earlier leadership theories reviewed above still have relevance in research today and have all contributed to the development of the full range model of leadership. The full range model of leadership is the main model underpinning the current study.

The reason for basing our study on the full range model for this study is due to the significant amount of research and support for the validity of the model, especially when looking at a wide range of outcome variables such as engagement and performance, which are particularly relevant to this study. The leadership styles within this model are also easily measurable and capture a 'full range' of different leadership styles, which is particularly useful to this study, as we are measuring a population of NZ dairy farmers where there is no previous leadership research to provide any context of what leadership styles are present in this population, let alone which behaviours are most effective. Therefore, by examining a range of different leadership styles we will get a clearer picture of which leadership styles are most relevant and effective in the NZ dairy industry.

The full range model of leadership was developed by Avolio and Bass in 1991 and was largely influenced by Burn's (1979) conceptualisation of transactional and transformational leadership. The model looks at specific styles of leader behaviour, and how they influence followers towards the achievement of organisational goals and results (Bass & Riggio, 2006). Several variations of Avolio and Bass' (1991) model have been proposed over the years, however, it currently consists of nine factors comprising five transformational leadership factors (idealised attributes, idealised behaviour, inspirational motivation, intellectual stimulation, and individualised consideration), three transactional leadership factors (contingent reward, management by exception action, and management by exception passive), and one factor of laissez-faire leadership (Antonakis, Avolio, & Sivasubramaniam, 2003; Avolio, 2011). Each of these leadership factors have been found to influence follower outcomes differently, with transformational leadership being viewed as particularly positive (Westerlaken & Woods, 2013).

### **Laissez-Faire Leadership**

Laissez-faire leadership is characterised by an absence of leadership, where the leader is not present or involved in important decisions or actions (Eagly, Johannesen-Schmidt, & Engen, 2003). Others have described laissez-faire leadership as involving non-commitment, laziness, complacency, avoidance and abdication of responsibility (Sarros & Santora, 2001). Leaders who exhibit laissez-faire behaviours tend to delay decisions, withhold rewards, fail to motivate employees, and do not attempt to satisfy individual needs (Bass & Avolio, 1994).

Laissez-faire leadership has been consistently linked to a number of negative outcomes, such as: lower job satisfaction among subordinates, lower leader effectiveness, lower affective commitment toward the organisation, role ambiguity, role conflict, conflict with co-workers, and bullying at work (Avolio, 1999; Buch, Martinsen, & Kuvaas, 2015). Similarly, Judge and Piccolo's (2004) meta-analysis found laissez-faire leadership to be negatively related to follower satisfaction with the leader, follower job satisfaction, and leader effectiveness.

While generally seen as a negative and ineffective leadership style, laissez-faire leadership may have a place in certain situations, such as: when employees are highly competent and no longer require much involvement and direction from the leader, and where competent employees desire high levels of autonomy and self-determination (Yang, 2015). Yang (2015) suggests that laissez-faire leadership may create an environment that supports innovation and entrepreneurship, and that it may enhance employees' self-efficacy for handling challenges.

### **Transactional Leadership**

Transactional leadership is a task-oriented style in which the leader focusses primarily on task completion and rewards those who are compliant and achieve the directed goals. It also involves the use of corrective criticism, negative feedback, and negative reinforcement for non-compliance or lack of achievement (Northouse, 2001). Transactional leader behaviours do not address employee needs, motivations or development, and workaholic patterns may be modelled and rewarded (Graham,

1995). Burns (1979) suggests that transactional leadership is common in workplace contexts but that it is not as effective as transformational leadership.

Transactional leadership consists of three sub-categories: contingent reward, management by exception active, and management by exception passive. Contingent reward involves a leader using rewards and recognition to motivate an employee to achieve a desired outcome or goal (Westerlaken & Woods, 2013). With management by exception active the leader focuses on corrective behaviours, actively monitors the actions of employees, looks out for mistakes and errors, and implements corrective actions as and when required (Bass & Riggio, 2006). Management by exception passive is when a leader passively waits for a problem to be brought to their attention, and then takes corrective action (Bass & Riggio, 2006).

The research on transactional research has shown mixed outcomes. Based on their meta-analysis, Judge and Piccolo (2004) argued that contingent reward was the most effective sub-category of transactional leadership, and that contingent reward was a valid predictor of job satisfaction and leaders' job performance. Avolio (1999) suggested that contingent reward is effective because it involves motivating followers by setting clear expectations and goals, and rewarding people for achievement of those goals. Similarly, Podsakoff, Todor, Grover, and Huber (1984) found that the contingent reward component of transactional leadership led to higher levels of subordinate satisfaction and performance than management by exception active and passive.

In relation to predicting follower motivation, organisational performance, and leader effectiveness, Judge and Piccolo (2004) found that management by exception active was neither effective nor ineffective, whereas management by exception passive was ineffective. Contrary to these findings, Podsakoff et al. (1984) found that contingent punishment behaviours (which are characteristics of management by exception active and passive) did have some positive effect on performance if they were combined with rewards as well.

These findings suggest that the subcategories of transactional leadership have contradictory influences on outcomes, therefore, this current study will look at the effects of the three separate

subcategories: contingent reward, management by exception active, and management by exception passive.

### **Transformational Leadership**

Bass (1985) pointed out that transformational leaders exhibit five main characteristics: idealised attributes (having a high level of trust in employees), idealised behaviour (having the ability to communicate a sense of purpose), inspirational motivation (having the ability to communicate important purposes in simple ways), intellectual stimulation (having the ability to promote intelligence, stimulation and problem solving), and individualised consideration (having the ability to recognise and promote individuality among employees). Based on these characteristics, Baker (2013) explains that transformational leaders are able to establish strong relationships with followers and use these relationships to inspire followers to go beyond what they believe they can accomplish. The transformational leader is able to communicate a mutually desirable and inspirational vision of the future and create a sense of commitment and loyalty towards the goals of the organisation (Bass, 1985; Baker, 2013).

Research on transformational leadership has consistently found that it is one of the most effective leadership styles for achieving positive outcomes. Transformational leadership has been linked to improved job satisfaction, motivation and well-being (Podsakoff, Mackenzie, Moorman, & Fetter, 1990; Hetland & Sandal, 2003; Judge and Piccolo, 2004; Hetland, Sandal, & Johnsen, 2007) and performance (Howell & Avolio, 1993; Barling, Weber, & Kelloway, 1996; Zacharatos, Barling, & Kelloway, 2000; Berson, Shamir, Avolio, & Popper, 2001; Xenikou & Simosi, 2006). Meta-analyses by Lowe, Kroeck, and Sivasubramaniam (1996), Dum Dum, Lowe, and Avolio (2002), and Judge & Piccolo (2004) showed that transformational leadership is also positively related to follower commitment, loyalty, satisfaction, and leader effectiveness.

While there is a significant amount of support for transformational leadership, it is not without its limitations. Some research has found contingent reward leadership to be more effective in predicting job satisfaction and leader's job performance than transformational leadership (Judge &

Piccolo, 2004). Yang (2015) has suggested that leaders who are highly involved and who aim to satisfy employees' needs can prompt employee self-absorption and dependency, which in turn hinders creativity. Despite these criticisms, the majority of research does support positive outcomes associated with predominant use of transformational leadership behaviours.

In line with the full range model of leadership, Bass (1998), and Howell and Avolio (1993) argue that the best leaders use both transformational and transactional approaches. Similarly, Bass and Riggio (2006) suggest that a leader can use both transformational and transactional leadership, but should do so in varying levels of frequency, and should adapt their leadership style based on the context. For example: Bass and Riggio (2006) found in non-extreme contexts, the optimal profile for a leader would be to use transformational leadership most frequently, transactional leadership with the second highest frequency, and use laissez-faire leadership only infrequently. Whereas, Geier (2016) found contingent reward leadership style to be the dominant predictor of followers' performance in extreme firefighting events. Geier (2016) also found that leader behaviours were adaptable depending on the context, with the same leaders using less transformational leadership in extreme contexts compared with normal contexts.

Judge and Piccolo (2004) argue that the subcategories of transformational leadership are highly correlated, therefore should be considered together as a single higher-order factor. On that basis, this current research will look at transformational leadership as a single factor rather than investigating the five sub categories separately.

### **Destructive Leadership**

While the full range model of leadership is appropriate for this study and covers a broad range of leadership styles, it does not include other more explicitly negative characteristics of leadership. Therefore, to consider as wide a range of leadership styles as possible for our study, destructive leadership will also be investigated.

Shaw, Erickson, and Harvey (2011) suggest that the history of leadership research has focussed predominantly on identifying the positive aspects of leadership, but that a growing interest

in the detrimental impacts of negative leadership behaviours has developed more recently. Einarsen, Aasland, and Skogstad (2007) define destructive leadership as “the systematic and repeated behaviour by a leader, supervisor, or manager that violates the legitimate interest of the organisation by undermining and/or sabotaging the organisation's goals, tasks, resources, and effectiveness and/or the motivation, well-being or job satisfaction of subordinates” (p.20).

Shaw et al. (2011) recognise that leaders who exhibit destructive leadership behaviours are more likely to be linked to negative individual and group outcomes. As its name implies, destructive leadership can have detrimental effects on productivity, an organisation's overall financial performance (Field, 2003), and employee morale (Olafsson & Johannsdottir, 2004). Employees who are subjected to destructive leadership can experience stress and even symptoms similar to post-traumatic stress disorder (Wilson, 1991; Leymann & Gustafsson, 1996), which can then impact their self-efficacy and ability to perform their job (Einarsen & Raknes, 1997; Einarsen, 1999).

Similarly, a meta-analysis by Schyns and Schilling (2013) found negative correlations with follower attitudes towards their leader, well-being, and individual performance. They also found positive correlations with turnover intention, resistance towards the leader, and counterproductive work behaviour, showing the significant detrimental effects of this leadership style. There is very little to no research arguing that destructive leadership is related to any positive outcomes.

## **EMPLOYEE ENGAGEMENT**

Having reviewed the literature of our main independent variable; leadership, we now turn our attention to a key dependent variable in this study: employee engagement.

The concept of employee engagement, also referred to as work engagement, first emerged from the work of Kahn (1990) who defined engagement as “the harnessing of organisation members' selves to their work roles by which they employ and express themselves physically, cognitively, and emotionally during role performances” (p. 694). Further developing Kahn's work, Schaufeli, Salanova, Gonzalez-Roma and Bakker (2002) defined engagement as “a positive, fulfilling, work-related state of mind that is characterised by vigour, dedication and absorption” (p. 74). Vigour can be described as



high levels of energy, mental resilience, a willingness to invest effort, and persistence when working. Dedication refers to a sense of significance and feeling inspired, challenged and enthusiastic, and it relates to a strong sense of commitment to work. Absorption refers to a state in which the employee is highly focussed and positively engrossed in their work (Bakker & Schaufeli, 2008). Key to this definition is the concept that employee engagement is a psychological state of mind and is not related to any particular object, event, individual, or behaviour.

The Job Demands-Resources (JD-R) model has underpinned a lot of research on employee engagement. Crawford, Le Pine, and Rich (2010) claim that over half of all published empirical research on engagement and its antecedents have been grounded in the JD-R perspective. Crawford et al. (2010) suggest the JD-R model is useful because it provides a clear and concise way to summarise research findings on the antecedents of employee engagement.

The JD-R model conceptualises most job attributes and working conditions into two overarching categories: job demands and job resources (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001). Job demands are any physical, social or organisational aspect of a job that requires sustained physical or mental effort and which is associated with physical or psychological costs (e.g., fatigue, exhaustion, or burnout). Job resources, on the other hand, are the physical, psychological, social or organisational aspects of a job that support an employee to reach work-related goals, mitigate job demands, or stimulate growth, learning, and development (Lee & Ok, 2015). The JD-R model suggests that job resources promote employee engagement through a motivational process, while job demands decrease engagement and contribute to burnout through a health impairment process (Crawford et al., 2010; Lee & Ok, 2015).

Through the motivational process, job resources “motivate employees, prompt personal growth and development, and foster goal achievement, all of which may lead to higher work engagement, lower disengagement, and higher performance” (Lee & OK, 2015, p. 88). Whereas, through the health impairment process, job demands exhaust employees’ mental and physical resources, which may in turn lead to depleted energy, health problems, and/or burnout (Lee & OK,

2015). In addition to these two processes, the JD-R model proposes an interaction between job demands and job resources, where job resources can mitigate the consequences of high job demands (Lee & OK, 2015). For example; individuals who have high levels of job resources can better manage demanding work conditions. This could suggest that farm employees who have positive and supportive leadership as a resource may be better able to deal with the demanding workload that is inherent of dairy farming, and may be less likely to suffer health problems, and be more likely to experience engagement.

### **Leadership and Employee Engagement**

Leadership has consistently been recognised as an antecedent of employee engagement (e.g. Demerouti et al., 2001; Macey & Schneider, 2008; Carasco-Saul et al., 2015). Within the JD-R model, previous research has found that leadership can either be a resource or a demand, or can influence other work environment factors to be perceived as demands or resources (Blomme, Kodden, & Beasley-Suffolk, 2015). For example, Bakker, Demerouti, Hakanen, and Xanthopoulou (2007) found that feedback, autonomy, social support, and organisational climate were consistently associated with engagement. Demerouti et al. (2001) found evidence that leader support, role clarity, pay, and job autonomy increased employee engagement. Similarly, Schaufeli and Salanova (2007) found that employees whose leaders coached them in their work and provided emotional support, were more engaged. These are all potential job resources, and they are all factors which a leader could have a significant amount of influence over, highlighting the importance of leadership in the JD-R model as an antecedent of employee engagement.

Carasco-Saul et al. (2015) recommended that leadership research should look at a range of leadership styles to identify which are most effective at encouraging employee engagement. This is one of the aims of the current study.

Transformational leadership has consistently been positively associated with employee engagement (Weichun, Avolio, & Walumbwa, 2009; Tims, Bakker, & Xanthopoulou, 2011; Blomme et al., 2015). Interestingly, Weichun et al. (2009) found that follower characteristics significantly

influenced the relationship between transformational leadership and work engagement. This is an important point in situational leadership theories, that there are likely many other factors that impact these relationships, such as: follower characteristics (Weichun et al., 2009) and self-efficacy of the follower (Halsbesleben, 2010).

Blomme et al. (2015) suggest that, in line with JD-R theory, transformational leaders exhibit characteristics that increase job resources, such as: social support, feedback, growth opportunities, and varied use of competencies, which ultimately lead to employee engagement. According to Schaufeli and Salanova (2008), transformational leadership produces stronger engagement in subordinates because such a leader provides visions and inspires employees. Based on this reasoning we expect in our study that transformational leadership will be positively related to employee engagement in our NZ dairy industry sample.

As well as finding a positive relationship between transformational leadership and employee engagement, Blomme et al. (2015) found that higher levels of transactional leadership corresponded with higher levels of employee engagement. Maslach, Schaufeli, and Leiter (2001) suggested that appropriate recognition and rewards (a key characteristic of contingent reward leadership) resulted in higher levels of engagement, where as a lack of rewards and recognition (characteristic of management by exception active and passive) led to burnout.

Based on JD-R theory and these findings, we expect contingent reward leadership to be positively related to employee engagement. The reason we expect this is based on the characteristics of contingent reward which is to provide rewards and reinforcement to followers when they meet desired expectations.

***Hypothesis 1a:*** *Transformational-contingent reward leadership will be positively related to employee engagement.*

Heinitz, Liepmann, and Felfe (2005) argued that contingent reward shows high correlations with transformational scales. In our data analysis we found that transformational and contingent reward leadership styles factor analysed together, therefore, creating one factor that measures both

transformational and contingent reward leadership. Therefore, our hypotheses are on the basis of this factor structure rather than as per the exact classification of the full range model of leadership which considers transformational and contingent reward to be two separate factors. Heinitz, Liepmann, and Felfe (2005) also found that management by exception remained an independent factor, therefore, our hypotheses reflect this, as below.

With management by exception active we would expect corrective criticisms and an active focus on mistakes to lower employee engagement. We also expect that management by exception passive will negatively impact employee engagement, as it represents a lack of resources such as a lack of support and lack of feedback.

***Hypothesis 1b:*** *Management by exception active will be negatively related to employee engagement.*

For the same reasons we expect management by exception passive to negatively influence employee engagement. Blomme et al. (2015) found laissez-faire leadership to be negatively related with employee engagement due to the lack of feedback, support, and coaching. In line with the JD-R model it is likely that due to the characteristics of laissez-faire leadership being non-existent that it represents a lack of resources, support and training, and therefore, we expect it would be negatively related to employee engagement.

Heinitz, Liepmann, and Felfe (2005) also found that management by exception passive highly correlates with laissez-faire, therefore, our hypotheses reflect this factor structure with one factor that looks at both passive and avoidant leadership behaviours 'passive-avoidant leadership'.

***Hypothesis 1c:*** *Passive-avoidant leadership (management by exception passive and laissez-faire leadership) will be negatively related to employee engagement.*

The way destructive leadership styles affect employee engagement is not as well researched and understood. Although, Karatepe (2013) found that negative leadership behaviours such as favouritism, unfair decisions regarding pay and promotion, and exercising of power (which are similar

characteristics of destructive leadership) created an ambiguous and uncertain work environment, which hindered employee engagement.

Considering the JD-R model and the characteristics of destructive leadership it is likely that destructive leadership creates demands on employees and/or erodes resources, therefore, leading to decreased employee engagement.

*Hypotheses 1d: Destructive leadership will be negatively related to employee engagement.*

## NEEDS SATISFACTION

A key mechanism identified as contributing to the relationship between leadership and employee engagement is needs satisfaction (Hetland, Hetland, Andreassen, Pallesen, & Notelaers, 2011; Kovjanic, Shuh, & Jonas, 2013). The concept of needs satisfaction is derived from self-determination theory (SDT).

SDT is a motivational framework and postulates that individuals are motivated by three inherent psychological needs; the need for autonomy, the need for relatedness, and the need for competence (Kovjanic, et al., 2013). The need for autonomy is defined as people's desire to experience ownership of their behaviour and to act with a sense of volition (Deci & Ryan, 2000). The need for relatedness is defined as a desire to achieve a sense of communion and belongingness (Baumeister & Leary, 1995), feeling part of a team, and feeling free to express themselves (Van den Broeck, Vansteenkiste, De Witte, & Lens, 2008). Finally, the need for competence relates to a desire to feel capable of mastering tasks and achieving desired outcomes (Van den Broeck et al., 2008).

SDT posits that the fulfilment of these three basic psychological needs is an essential prerequisite for human thriving and development, and can lead to enhanced psychosocial outcomes, such as: engagement, persistence, and self-regulation (Deci & Ryan, 2000). It is important to note that, within SDT, the focus is on the individual's experience of need satisfaction rather than on the specific strength of the need. This recognises that individuals may differ in the level of each need that they desire, and that not all people will require high amounts of each need (Van den Broeck et al., 2008).

Evidence shows that leadership and needs satisfaction are significantly related. Hetland et al. (2011) found that leadership was one of many work related factors that led to satisfaction of the three psychological needs. Kovjanic et al. (2013) also suggested that the leaders in an organisation are important for needs satisfaction because they have the ability to influence follower perceptions of goals, tasks, and rewards that either support or decrease needs satisfaction. Transformational leadership has been identified as particularly effective in fulfilling all three basic psychological needs of autonomy, relatedness, and competence (Shamir, House, & Arthur, 1993). Hetland et al. (2011) suggest that the transformational leader can build satisfaction of the need for competence by providing challenges, showing confidence in the followers' abilities, and enhancing abilities through coaching. Transformational leaders also foster satisfaction of relatedness needs by strengthening team morale, voicing a compelling vision, emphasising the importance of team goals and purpose, and respecting individual differences of team members. Finally, transformational leaders foster satisfaction of the need for autonomy by encouraging followers to discover their own solutions to problems and to consider other perspectives.

The links between transactional leadership and needs satisfaction are less clear. Hetland et al. (2011) found that management by exception active was negatively related to satisfaction of all three needs, suggesting that it can threaten a person's sense of autonomy, undermine a sense of achievement and competence, and create uncertainty about one's position at a workplace. Yang (2015) argued that contingent rewards and punishment reduced the amount of employee autonomy and may threaten employee self-determination and self-competence. Hetland et al. (2011) found that both management by exception active and passive had negative impacts on need satisfaction but contingent reward behaviours had positive relationships with needs satisfaction. The relationships of laissez-faire and destructive leadership styles to needs satisfaction is not as well researched or understood.

Needs satisfaction is also related to employee engagement (Deci & Ryan, 2000; Gagne & Deci, 2005; Van den Broeck, 2008). Bakker and Demerouti (2007) found satisfaction of the need for autonomy to be particularly important to employee engagement.

Two main studies to date have examined followers' needs satisfaction as a mediator between leadership and employee engagement (Hetland et al., 2011; Kovjanic et al., 2013). Kovjanic et al. (2013) found that transformational leadership induced the satisfaction of the needs for competence, relatedness, and autonomy, and that satisfaction of needs for competence and relatedness subsequently predicted employee engagement, as well as greater task performance.

In line with the JD-R model, Van den Broeck et al. (2008) confirmed that satisfaction of basic psychological needs partially explained the relationships between job resources and vigour (a key component of engagement).

These findings provide support for our proposed hypotheses, that needs satisfaction will mediate the relationship between leadership and employee engagement. This current study will further expand on previous research by comparing the mediating effects of each need with a range of different leadership styles and employee engagement.

***Hypothesis 2a:** Satisfaction of the needs for i. autonomy, ii. relatedness and iii. competence will mediate the relationship between transformational-contingent reward leadership and employee engagement.*

***Hypothesis 2b:** Satisfaction of the needs for i. autonomy, ii. relatedness and iii. competence will mediate the relationship between passive-avoidant leadership and employee engagement.*

***Hypothesis 2c:** Satisfaction of the needs for i. autonomy, ii. relatedness and iii. competence will mediate the relationship between management by exception active leadership and employee engagement.*

***Hypothesis 2d:** Satisfaction of the needs for i. autonomy, ii. relatedness and iii. competence will mediate the relationship between destructive leadership and employee engagement.*

## PERFORMANCE

As with all industries, performance in the NZ Dairy industry can be conceptualised in many different ways. It can be net profit, number of hours worked by staff, or quality of work by staff as rated by employees or leaders, for example. For the purpose of this research, performance is conceptualised as a quantitative measure of overall farm performance, represented by milk production. This measure, rather than self-reported task performance or leader rated job performance, was chosen as it is a relatively objective indicator of performance on dairy farms, it is easily measurable, and it is a well-known and desired outcome for most dairy farmers.

### Performance and Leadership

There is a substantial amount of research connecting leadership and performance. There are five predominant meta-analyses that have provided support for a predictive relationship between leadership and performance (Lowe et al., 1996; DeGroot, Kiker, & Cross, 2000; Dumdum et al., 2002; Judge & Piccolo, 2004).

A significant amount of research has supported the positive relationship between transformational leadership and follower performance (Howell & Avolio, 1993; Barling et al., 1996; Zacharatos et al., 2000; Berson et al., 2001; Xenikou & Simosi, 2006). Patiar and Mia (2009) found that transformational leadership was positively associated with an organisation's non-financial performance, which in turn was positively associated with overall financial performance. In a meta-analysis, Judge and Piccolo (2004) also found transformational leadership to be positively related to leader job performance and group organisational performance. A possible explanation for this positive association has been presented by Bass (1985), who suggests that transformational leadership motivates followers to overcome their self-interest and to put effort into their assigned goals and tasks, by inspiring and supporting followers, providing challenges, being optimistic about the future, and acting as a role model.

Transformational and transactional leadership styles are not considered to be completely independent from each other, and Bass (1985) has suggested that transactional leadership provides



the base for expected levels of performance, while transformational leadership builds upon that base resulting in performance beyond expectations.

Findings for the relationship between transactional leadership and performance have been mixed. Howell and Avolio (1993) found that contingent reward and management by exception active and management by exception passive were negatively related to business-unit performance. However, other researchers found contingent reward to be positively related to performance (Reitz, 1971; Sims, 1977; Klimoski & Hayes, 1980; Podsakoff, Todor, & Skov, 1982; Podsakoff & Schriesheim, 1985; Dionne, Yammarino, Comer, Dubinsky, & Jolson, 1996; Judge and Piccolo, 2004). Howell and Avolio (1993) suggest that by clarifying what the leader wants and then rewarding the appropriate behaviours, the leader directs followers to the performance level he or she desires.

In considering context, Geier (2016) found that contingent reward positively predicted follower performance in extreme firefighting events, but transformational leadership positively predicted follower performance in normal contexts. These findings suggest that the effectiveness of leadership styles may be situation and context dependant.

While previous research has supported a positive relationship between contingent reward and performance, the remaining two sub-categories of transactional leadership; management by exception active and management by exception passive have seen more negative relationships with performance (Yammarino & Bass, 1990). Even more so for management by exception passive (Bass & Yammarino, 1991; Yammarino & Bass, 1990). Howell and Avolio (1993) suggest that management by exception active may be a necessary part of leadership, but when used to extreme or in place of more constructive forms of leadership, it is likely to have a negative impact on the satisfaction and performance of followers. Podsakoff et al. (1984) have argued that leaders who use management by exception active behaviours, could actually enhance follower performance if their criticism is perceived as fair, clarifies performance standards, or modifies poor performance in an acceptable way to avoid aversive consequences. Some research has identified a positive relationship between management by exception and performance (Greene, 1976), and some have identified no

relationship (Podsakoff et al, 1982; Podsakoff et al., 1984). However, the majority of evidence suggests that leaders who rely more on management by exception active will obtain lower levels of follower performance.

Based on these findings we propose that transformational and contingent reward leadership behaviours will be positively associated with milk production performance, whereas, management by exception active will be negatively related to milk production performance.

***Hypothesis 3a:*** *Transformational-contingent reward leadership will be positively related to milk production performance.*

***Hypothesis 3c:*** *Management by exception active will be negatively related to milk production performance.*

Podsakoff et al. (1984) suggested that if leaders are passive in their criticisms or are not clear about the goals and outcomes of achievement or failure, then such behaviour may have a negative impact on follower effort and performance. Similar in its passive nature, laissez-faire leadership has also been found to be negatively related to performance (Dionne et al., 1996; Judge & Picollo, 2004).

***Hypothesis 3b:*** *Passive-avoidant leadership (management by exception passive and laissez-faire) will be negatively related to milk production performance.*

A meta-analysis by Schyns and Schilling (2013) found a negative relationship between destructive leadership and individual performance. Therefore, we hypothesise the following:

***Hypothesis 3d:*** *Destructive leadership will be negatively related to milk production performance.*

### **Performance and Employee Engagement**

There are many positive outcomes associated with employee engagement, performance being one of them. Research has consistently found employee engagement to be related to performance (e.g. Harter, Schmidt, & Hayes, 2002; Salanova, Agut, & Peiro', 2005; Xanthopoulou, Bakker, Heuven, Demerouti, & Schaufeli, 2008; Schneider, Macey, Barbera, & Martin, 2009;

Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2009; Crawford et al., 2010; Dalal, Baysinger, Brummel, & LeBreton, 2012).

To reinforce the importance of employee engagement to individual and overall organisational performance, Crawford et al (2010) found that having engaged employees and better performing employees ultimately resulted in higher shareholder return, profitability, and customer satisfaction. Similarly, Hughes and Rog (2008) suggest that highly engaged employees say more positive things about their organisation which contributes to a positive employer brand, they are more likely to remain within the organisation which reduces turnover, and they regularly exert more effort than those with low engagement which has a potential flow on effect for better service quality, customer satisfaction, productivity, sales, and overall profitability.

Bakker (2009) partly explained why engaged employees perform better than non-engaged individuals. He stated that engaged employees more frequently experience positive emotions such as happiness, pleasure and enthusiasm, they tend to have better health, they communicate their engagement to others, and they take responsibility and initiative for creating their own work related and personal resources. Kodden (2011) claims it is the level of dedication, which is characteristic of employee engagement, which may be a highly important predictor of both individual and overall organisational performance.

***Hypothesis 4 – Employee Engagement will be positively related to milk production performance.***

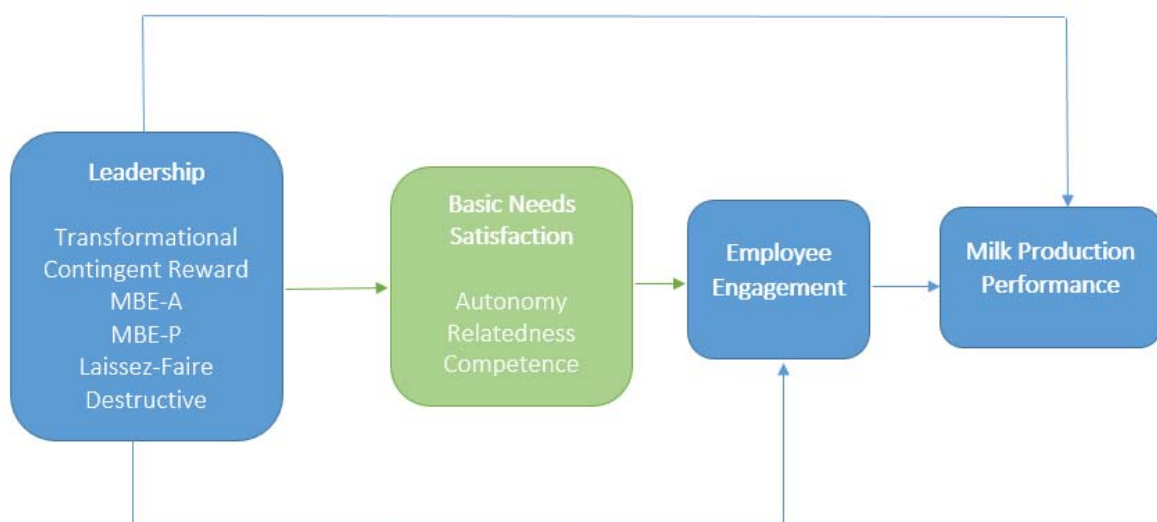
Based on the discussions above, it is clear that certain leadership styles can either increase or decrease employee engagement. It is also clear that employee engagement is positively related to performance, therefore, it seems reasonable to propose that employee engagement will mediate the relationship between leadership and performance.

***Hypothesis 5 – Employee Engagement will mediate the relationships between each leadership style and milk production performance.***

## TYING IT ALL TOGETHER - CONCEPTUAL FRAMEWORK

In summary, this study has proposed that different leadership styles will interact differently with follower levels of employee engagement, which will be mediated by needs satisfaction, and which will ultimately impact overall milk production performance. As reflected by our hypotheses it is specifically expected that transformational and contingent reward leadership behaviours will be positively related to needs satisfaction, employee engagement, and milk production. Whereas management by exception active, management by exception passive, laissez-faire, and destructive leadership behaviours will be negatively related to needs satisfaction, employee engagement, and overall milk production performance. Figure 1 below depicts these expected relationships.

**Figure 1.** Graphical representation of this study's conceptual framework



## CHAPTER 3: METHOD

The philosophical worldview underpinning the current research design is the post-positivist epistemology, which recognises that we cannot be completely certain about our claims of knowledge when studying the behaviour and actions of humans, as there is no absolute truth (Creswell, 2009). The post-positivist view focusses on assessing the causes of outcomes, and the knowledge that develops from this view is based on observation and measurement of the objective reality that exists in the world. This view is often most relevant to quantitative research designs. Research based on the post-positivist view is also based on theories and laws which can be tested, verified or refined to develop knowledge and understanding about the world. Therefore, following the scientific method, a researcher begins with a theory and research question that is falsifiable, and collects data that either supports or refutes the theory, which ultimately contributes to knowledge development (Creswell, 2009).

### RESEARCH DESIGN

The research design for this thesis is a non-experimental quantitative research design using a self-report online survey to collect cross sectional data. The rationale for using this approach is that such a design is an economical method for data collection, it allows the use of a large sample size to make inferences about a wider population, and the use of an online means of distribution allows for a wide range of potential participants, which increases the validity, reliability and ultimately the generalisability of the results.

### PARTICIPANTS

This study was based on a sample of 122 NZ dairy farm employees. The term dairy farm employee encapsulated a range of different roles; the only exclusion criterion was having more than 50% ownership of the farm. In order to be eligible to fill in the survey respondents were required to have worked on a dairy farm for the entire 2015/16 season. There were no restrictions on age or gender of participants.

Participants were selected as a convenience sample, to attempt to ensure that the sample was representative of the population throughout all regions of NZ. The surveys were distributed through large communication channels of dairy related companies or online support groups (i.e. Federated Farmers, NZ Young Farmers, Farmers Weekly and NZ Farming). The purpose of this approach was to attempt to create equal opportunity for all farmers of all ages, gender, and regions to participate.

One hundred and twenty two respondents completed at least some of the questions in the survey. Sample sizes for individual items ranged from 63 to 122. Missing data were removed from the analysis using pairwise deletion. Table 1 below summarises the demographic information of the sample.

**Table 1:** Demographic information for the sample

	Sample (%)
<b>Gender</b>	
Male	61 (50%)
Female	61 (50%)
Missing	0
Total	122 (100%)
<b>Age</b>	
15-24 years	36 (29.5%)
25-34 years	54 (44.3%)
35-44 years	25 (20.5%)
45+ years	7 (5.7%)
Missing	0
Total	122 (100%)
<b>Region</b>	

North Island	61 (50%)
South Island	60 (49.2%)
Missing	1 (0.8%)
Total	122 (100%)
Highest Qualification	
No Qualification	5 (4.1%)
High School Qualification	38 (31.1%)
Diploma or Certificate	32 (26.2%)
Tertiary Qualification	47 (38.5%)
Missing	0
Total	122 (100%)
Hours worked per week	
0-20	8 (6.6%)
21-40	15 (12.3%)
41-60	63 (51.6%)
61-80	28 (23.0%)
81-100	4 (3.3%)
Missing	3 (2.5%)
Total	122 (100%)
Job title of leader	
Owner	52 (42.6%)
Sharemilker	15 (12.3%)
Manager	32 (26.2%)
Other	10 (8.2%)
Missing	13 (10.7%)

Total	122 (100%)
Farm System	
System 1	7 (5.7%)
System 2	20 (16.4%)
System 3	15 (12.3%)
System 4	9 (7.4%)
System 5	12 (9.8%)
Missing	59 (48.4%)
Total	122 (100%)

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In summary, there was a 50% split of male and female respondents. Our sample was relatively young, with 94.3% of the respondents being aged between 15-44 years. The age group with the highest representation was 25-34 year olds (44.3%). There was at least one respondent in each region, with a fairly even split of respondents between the North Island with 50% and 49.2% in the South Island. Data on education level showed the majority of respondents were well educated with at least a high school qualification. Thirty nine percent were tertiary educated, and only 4.1% had no qualification.

Respondents in general worked very long hours, with the majority working an average of 60 hours per week. When asked what the job title of the leader that they were rating was, the largest category was rating the Farm Owner (42.6%). The other major job titles being rated were either Managers (26.2%) or Sharemilkers (12.3%).

These demographics are fairly representative of the wider NZ farming population. Jackson (2013) reported that the average age of NZ dairy farm employees in 2006 was 33.6 years. This is a slightly higher average than our sample which may be reflective of the fact that the survey was mainly distributed through online means which may not have been as accessible to older age groups. While we were unable to locate any statistics on gender, it is likely that the dairy industry is more male



dominant, rather than an exact 50% split as in the sample. The 2013 Census shows similar statistics to our sample in regards to hours worked, reporting that 26% of the agriculture industry work 60 or more hours per week, and that 42% work between 40-60 hours per week (Statistics NZ, 2012). Statistics NZ does not break these statistics down to more specific industries, however, the wider agriculture industry is likely to be similar to the dairy industry.

The sample saw a fairly equal split between respondents from the North and South Islands, however, the dairy industry has a higher proportion of dairy farmers in the North Island than the South Island. Dairy NZ (2016) report that the North Island has 60% of all dairy cows and produce, compared to the South Island with 40%. Similarly, Statistics NZ (2012) report 64% of all agriculture, forestry, and fishing workers to be in the North Island, compared to 36% in the South Island. While these statistics do not specifically report employee numbers in each region it is reasonable to assume that the proportion of employees would be relative to the proportion of cows that are being farmed.

## **MEASURES**

### **Leadership Styles**

Leadership styles were measured using Bass and Avolio's (1995) Multifactor Leadership Questionnaire (MLQ), used with permission of the copyright holder. The MLQ comprises 45 items, which measure three main leadership styles and their sub-categories; transformational leadership (idealised attributes, idealised behaviour, inspirational motivation, intellectual stimulation, and individualised consideration), transactional leadership (contingent reward, management by exception active, management by exception passive), and laissez-faire leadership.

The 45 descriptive statements in the MLQ ask the respondents to rate on a Likert scale from '0' (not at all), to '4' (frequently, if not always) how frequently their leader (from the 2015/16 season) engaged in each specific behaviour. Higher scores indicated that respondents perceived their leaders to engage in that behaviour more frequently.

The MLQ items were subjected to Principal Component Analysis (PCA) with varimax rotation. Factor structures were examined with reference to eigenvalues and scree plots. Three factors were

identified and explained a respectable 60% of the variance. These three styles were not the three leadership styles envisaged in the full range model of leadership: transformational, transactional, and laissez-faire leadership. Instead, there was less of a clear distinction between transactional and transformational leadership than expected. Contingent reward (transactional leadership) items loaded with the transformational leadership items; items for management by exception-passive loaded with laissez-faire leadership items, and items for management by exception-active formed a distinct factor. The factor structure however is interpretable and broadly in line with theory (e.g. Heinits, Liepmann, Felfe, 2005). For the sake of clarity, these three leadership styles have been referred to as *transformational-contingent reward leadership*, *passive-avoidant leadership*, and *management by exception-active leadership*.

**Transformational-contingent reward leadership** comprised 23 items (e.g. ‘talks about their most important values and beliefs’, and ‘makes clear what one can expect to receive when performance goals are achieved’). This factor had good internal consistency reliability with Cronbach’s alpha of .97.

**Passive-avoidant leadership** comprised seven items which focussed on passive and avoidant management behaviours (i.e. ‘avoids getting involved when important issues arise’ and ‘is absent when needed’). This item also had good internal consistency reliability with Cronbach’s alpha of .86.

**Management by exception active** comprised five items, which all focussed on management’s attention to employee errors and mistakes (i.e. ‘directs my attention toward failures to meet standards’ and ‘keeps track of all mistakes’). This factor had poor reliability with Cronbach’s alpha of .69. Because of this low reliability, any results associated with this factor should be considered cautiously.

**Destructive leadership** was measured with the 20 item version of Shaw et al.’s (2011) Destructive Leadership Questionnaire (DLQ). The original DLQ is comprised of 126 items; the current version is based on Gardner, O’Driscoll, Cooper-Thomas, Roche, Bentley, Catley, Teo, & Trenberth, (2016) and comprises the 20 items with the highest loadings. Each item asks respondents to judge

how accurately each statement described their leader on a Likert scale from '1' (strongly disagree) to '6' (strongly agree), e.g. 'my boss attempts to exert total control over everyone', and 'I rarely know what my boss expects of me'. Higher scores indicated that a respondent perceived their leader to engage in that behaviour more frequently. PCA with varimax rotation identified one factor accounting for 62% of the variance ( $\alpha = .97$ ).

### **Employee Engagement**

Employee Engagement was measured using the 9-item Utrecht Work Engagement Scale (UWES-9) (Schaufeli, Bakker, & Salanova, 2006). Each item asked participants to judge how frequently the statement applied to themselves, using a Likert-type scale ranging from '0' (never), to '6' (always/every day). Higher scores indicated higher levels of engagement in their work.

PCA using varimax rotation identified three factors accounting for 76% of the variance, however, the scree plot showed one dominant factor accounting for 52% of the variance. A single factor was therefore used for the analysis; scales were computed as the means of the nine items. Example items included: 'I feel happy when I am working intensely' and 'I am enthusiastic about my job'. Reliability for this factor was good with Cronbach's alpha of .87.

### **Needs Satisfaction**

Needs Satisfaction was measured using The Work Related Basic Needs Satisfaction Scale (WRBNS) (Van den Broeck, Vansteenkiste, De Witte, Soenens, & Lens, 2010). The WRBNS contains 21 items and measures the satisfaction of three psychological needs: autonomy, relatedness, and competence. Each item asks respondents to judge how accurately the statement reflects how they themselves felt at work during the 2015/16 season, based on a Likert scale from '1' (totally disagree), to '5' (totally agree). Higher scores indicated the respondent perceived that statement to more accurately reflect their feeling at work. A response of '3' (don't know) is also provided on each item. Some items were negatively loaded, so were recoded before analysis.

The WRBNS items were subject to PCA with varimax rotation. Factor structures were examined with reference to eigenvalues and scree plots. Three factors were identified accounting for

67% of the variance. As expected these three factors were: satisfaction of the need for autonomy, satisfaction of the need for relatedness, and satisfaction of the need for competence.

The autonomy factor comprised six items (i.e. 'I feel free to do my job the way I think it could best be done'). Reliability was good with Cronbach's alpha of .90. The relatedness factor comprised of four items (i.e. 'at work I can talk with people about things that really matter to me'). Reliability for this factor was good with Cronbach's alpha of .82. The competence factor comprised of four items (i.e. 'I am good at the things I do in my job'). Reliability for this factor was also good with Cronbach's alpha of .78.

### **Milk Production Performance**

Three items examined milk production performance. Participants were asked for the overall kilograms of milk solids for their farm for the 2015/2016 season, the farm's effective size in hectares and the size of the cow herd. This enabled the calculation of two production measures: kilograms of milk solids per cow and kilograms of milk solids per hectare. These values could be compared with Dairy NZ data, which suggests nationwide averages for milk production were 377kg of milk solids per cow (Dairy NZ, 2015). These statistics enable comparisons of the sample to the national data.

Participants were also asked about their farm's feed system and region, as these affect milk production performance. Dairy NZ categorises most farm feed systems on a 5 point scale. A system 5 farms means that a farm has a lot of external input of feed, whereas a system 1 farm is predominantly all grass fed. Therefore, it is clear that a system 1 farm compared to a system 5 farm could have the same number of effective hectares, and milking cows, yet they could have very different milk production based on the feed system they use.

### **PROCEDURE**

This study was conducted in accordance with the New Zealand Psychological Society's ethical guidelines for research, and permission to conduct the study was granted from the Massey University Human Ethics Committee via a Low Risk Notification.

Data were collected by means of a secure, anonymous online survey hosted by Qualtrics. The survey took approximately 10-15 minutes to complete and was accessible to respondents for 4 weeks in September and October 2016. The online link to the survey was distributed through a variety of dairy-related organisations' and support groups' electronic newsletters or Facebook pages. Federated Farmers, an industry advocacy organisation for the rural sector in New Zealand, distributed the online link via a weekly e-newsletter sent to a database of approximately 12,000 people (including all farming members and industry-related people). New Zealand Young Farmers distributed the online link via their Facebook page, which has a following of 6,744 people. Farmers Weekly distributed the online link via their Facebook page, which has a following of 13,234 people. NZ Farming also distributed the online link via their Facebook page, which has a following of 102,313 people. The link was also distributed via the researcher's personal Facebook page and was shared by connections of the researcher.

Due to the online distribution survey, we were unable to compute an exact response rate, as it is impossible to know how many NZ dairy farmers saw the Facebook posts or e-newsletters. However the use of multiple distribution platforms meant there was potential for far-reaching exposure for potential participants throughout all New Zealand regions.

Participation was voluntary. Before completing the survey, participants were advised of the purpose of the study, and were assured of anonymity and confidentiality. They were then asked to provide their informed consent to participate before proceeding.

## **DATA ANALYSIS**

Data were entered into the Statistical Package for the Social Sciences (SPSS), version 23.0.

Principle Component Analyses with varimax rotation were carried out on all variables to verify factor structures. Independent samples t-tests and Analysis of Variance (ANOVA) were used to examine differences between groups. Bivariate relationships were tested using Pearson's product-moment correlation, hypothesis 3 was tested using regression, and mediation analyses were based on the guidelines of Baron & Kenny (1986).

## CHAPTER 4: RESULTS

### GROUP DIFFERENCES

All demographic variables were tested for group differences. The only group difference identified was a gender difference in the competence need satisfaction variable. Specifically, we found that male participants on average reported higher satisfaction of the competence need ( $M = 4.22$ ,  $SE = .11$ ), than females ( $M = 3.80$ ,  $SE = .14$ ). This difference was significant  $t(66) = 2.29$ ,  $p < .05$ .

### CORRELATIONS

As predicted and in line with H1a we found a significant positive relationship between transformational-contingent reward leadership and employee engagement. We also found support for hypotheses H1b and H1d as both passive-avoidant leadership and destructive leadership were significantly negatively related to employee engagement. H1c was not supported, as we did not find a significant relationship between management by exception active and employee engagement.

We were also unable to find a significant relationship between milk production performance and leadership styles or engagement so hypotheses H3a, H3b, H3c, H3d and H4 were not supported. Table 2 presents means, standard deviations, and correlation coefficients.

While not directly related to our hypotheses the correlation analyses showed that satisfaction of the need for autonomy was significantly related to all four leadership styles, most strongly for transformational-contingent reward leadership (in a positive direction) and destructive leadership (in a negative direction). Interestingly, passive-avoidant leadership and autonomy were significantly negatively related. Passive-avoidant leadership is characterised by avoidant and non-existent leadership behaviours, which could mean an employee has more autonomy at work, however, our findings suggest that passive-avoidant leadership behaviours does not support autonomy. Satisfaction of autonomy needs was positively related to employee engagement. Satisfaction of the need for relatedness was related to transformational-contingent reward leadership, passive-avoidant leadership, destructive leadership, and employee engagement. Satisfaction of the need for

competence was negatively related to destructive leadership behaviours, suggesting that destructive leadership behaviours may mean employees feel less competent in their work, or that employees who are less competent evoke more destructive behaviours in their leaders. This would be interesting to investigate further.

**Table 2:** Means, Standard Deviations, and Correlations

Variables	1	2	3	4	5	6	7	8	9	10
1. Transformational- Contingent Reward Leadership	-									
2. Passive-avoidant leadership	-.60**	-								
3. Management by exception active	.09	.01	-							
4. Destructive Leadership	-.87**	.75**	.13	-						
5. Employee Engagement	.50**	-.42**	-.16	-.48**	-					
6. Autonomy	.71**	-.61**	-.25*	-.80**	.57**	-				
7. Relatedness	.42**	-.34**	-.01	-.40**	.34**	.46**	-			
8. Competence	.19	-.19	-.16	-.27*	.24	.42**	.45**	-		
9. MSKG per Hectare	.11	.07	-.10	-.06	-.03	.11	.00	.21	-	
10. MSKG per cow	.14	.08	-.10	-.05	-.02	.13	.10	.14	.91**	-
Mean	2.15	1.38	2.03	2.35	4.60	3.42	3.37	4.00	1126.18	401.85

(SD) (1.05) (.98) (.89) (1.29) (.94) (1.08) (1.04) (.78) (449.56) (138.10)

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\*  $P < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .

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## REGRESSION ANALYSES AND MEDIATION

Satisfaction of the need for autonomy fully mediated the relationship between transformational-contingent reward leadership and employee engagement (H2ai), between passive-avoidant leadership and employee engagement (H2bi) and between destructive leadership and employee engagement (H2di), highlighting the importance of autonomy in the relationship between leadership behaviours and employee engagement. However, autonomy did not mediate the relationship between management by exception-active and employee engagement (H2ci).

Satisfaction of the need for relatedness did not mediate the relationship between any of the leadership styles and employee engagement, therefore, not supporting H2aii, H2bii, or H2dii. Relatedness need satisfaction was not significantly related to management by exception active leadership, therefore, the conditions of mediation as proposed by Baron and Kenny (1986) were not met, and there was no mediation relationship to test (H2cii).

H2aiii, H2biii, and H3ciii were not supported. Satisfaction of the need for competence was not significantly related to transformational-contingent reward leadership, passive-avoidant leadership, or management by exception leadership, therefore, not meeting the first condition for mediation proposed by Baron and Kenny (1986), and meaning there was no mediating relationship to test. Satisfaction of the need for competence was significantly related to destructive leadership, however, it did not mediate the relationship between destructive leadership and employee engagement (H2diii).

Table 3 below summarises the mediation relationships.

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**Table 3:** Needs satisfaction as a mediator between leadership styles and employee engagement

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DV	IV	B	SE B	$\beta$	Adj. R <sup>2</sup>	Sobel test	
<b>H2a i. Autonomy needs satisfaction will mediate the relationship between Transformational-Contingent</b>							
<b>Reward Leadership and Employee Engagement</b>							
1	Employee Engagement	Transformational-Contingent	.44	.10	.50***	.24	2.75**
		Reward Leadership					
2	Autonomy	Transformational-Contingent	.73	.09	.71***	.49	
		Reward Leadership					
3	Employee Engagement	Transformational-Contingent	.17	.13	.19	.32	
		Reward Leadership					
		Autonomy	.38	.13	.43**		
<b>H2a ii. Relatedness needs satisfaction will mediate the relationship between Transformational-Contingent</b>							
<b>Reward Leadership and Employee Engagement</b>							
1	Employee Engagement	Transformational-Contingent	.44	.10	.50***	.24	1.21
		Reward Leadership					
2	Relatedness	Transformational-Contingent	.42	.11	.42***	.17	
		Reward Leadership					
3	Employee Engagement	Transformational-Contingent	.38	.11	.43**	.24	
		Reward Leadership					
		Relatedness	.14	.11	.15		
<b>H2a iii. Competence needs satisfaction will mediate the relationship between Transformational-Contingent</b>							
<b>Reward Leadership and Employee Engagement</b>							
1	Employee Engagement	Transformational-Contingent	.44	.10	.50***	.24	1.08
		Reward Leadership					
2	Competence	Transformational-Contingent	.14	.09	.19	.02	
		Reward Leadership					

3	Employee Engagement	Transformational-Contingent Reward Leadership	.42	.10	.47***	.25
		Competence	.21	.14	.17	

**H2b i. Autonomy needs satisfaction will mediate the relationship between Passive-avoidant leadership and**

**Employee Engagement**

1	Employee Engagement	Passive-avoidant leadership	-.39	.11	-.42***	.17	-3.09**
2	Autonomy	Passive-avoidant leadership	-.67	.11	-.61***	.36	
3	Employee Engagement	Passive-avoidant leadership	-.10	.13	-.11	.31	
		Autonomy	.43	.12	.50***		

**H2b ii. Relatedness needs satisfaction will mediate the relationship between Passive-avoidant leadership**

**and Employee Engagement**

1	Employee Engagement	Passive-avoidant leadership	-.39	.11	-.42***	.17	-1.54
2	Relatedness	Passive-avoidant leadership	-.35	.12	-.34**	.10	
3	Employee Engagement	Passive-avoidant leadership	-.32	.11	-.35**	.20	
		Relatedness	.20	.11	.22		

**H2b iii. Competence needs satisfaction will mediate the relationship between Passive-avoidant leadership**

**and Employee Engagement**

1	Employee Engagement	Passive-avoidant leadership	-.39	.11	-.42***	.17	-1.00
2	Competence	Passive-avoidant leadership	-.15	.10	-.19	.02	
3	Employee Engagement	Passive-avoidant leadership	-.36	.11	-.39**	.18	
		Competence	.20	.15	.16		

**H2d i. Autonomy needs satisfaction will mediate the relationship between Destructive Leadership and**

**Employee Engagement**

1	Employee Engagement	Destructive Leadership	-.34	.08	-.48***	.21	-2.96**
2	Autonomy	Destructive Leadership	-.67	.06	-.80***	.64	

3	Employee Engagement	Destructive Leadership	-.04	.12	-.05	.30
		Autonomy	.46	.15	.53**	

**H2d ii. Relatedness needs satisfaction will mediate the relationship between Destructive Leadership and**

**Employee Engagement**

1	Employee Engagement	Destructive Leadership	-.34	.08	-.48***	.21	-1.35
2	Relatedness	Destructive Leadership	-.32	.09	-.40**	.15	
3	Employee Engagement	Destructive Leadership	-.30	.09	-.40**	.23	
		Relatedness	.16	.11	.18		

**Hd iii. Competence needs satisfaction will mediate the relationship between Destructive Leadership and**

**Employee Engagement**

1	Employee Engagement	Destructive Leadership	-.34	.08	-.48***	.21	-1.02
2	Competence	Destructive Leadership	-.16	.07	-.27*	.06	
3	Employee Engagement	Destructive Leadership	-.31	.08	-.44***	.22	
		Competence	.17	.15	.14		

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\* P < .05, \*\* p < .01, \*\*\* p < .001.

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## CHAPTER 5: DISCUSSION

### Overview of Results

In the full range model of leadership, management by exception active and laissez faire leadership styles are considered distinct concepts, however, in our study we found that they factor analysed together as one leadership style factor, which represented passive-avoidant leadership behaviours. This suggests that leaders in the NZ dairy industry who exhibit management by exception passive behaviours also exhibit laissez-faire leadership behaviours, which is reasonable given the similarity in their characteristics. Our study also found that transformational and contingent reward leadership styles factor analysed together, rather than being distinct concepts as per the full range model of leadership. This may be unique to the NZ dairy farming context, however, other researchers have found similar factor structures which suggests a potential limitation of the full range model of leadership and the associated MLQ measure. Consistent with our findings, Heinitz, Liepmann, and Felfe (2005) argued that contingent reward shows high correlations with transformational scales, management by exception passive highly correlates with laissez-faire, and management by exception active forms its own factor.

The fact that the transformational and transactional leadership styles factor analysed together in our study makes sense, as it is likely a leader who uses transformational behaviours to inspire and empower their employees to reach goals and targets, would then also reward them when desired outcomes have been achieved. This finding also supports the notion of Bass (1998), Howell and Avolio (1993), and Bass and Riggio (2006) who all argued that transformational and transactional leadership are not distinct concepts but exist on a continuum, and that the best leaders use both transformational and transactional behaviours to varying extents.

Our study found that transformational and contingent reward leadership behaviours (transformational-contingent reward leadership) were related to higher levels of employee engagement on NZ dairy farms. This finding is in line with a multitude of literature supporting such a relationship. For example: Weichun et al. (2009), Blomme et al. (2015), and Tims et al. (2011) all

found transformational leadership to be positively related to employee engagement. Previous research has also supported a positive relationship between contingent reward leadership and employee engagement (e.g. Podsakoff et al., 1984; Avolio, 1999; Judge & Piccolo, 2004).

We were unable to identify a significant relationship between management by exception active leadership and employee engagement in our study. A possible reason for this outcome could be the low reliability of the management by exception active leadership factor. While this finding did not support our hypothesis that management by exception active would be negatively related to employee engagement, to understand this better, future research should examine this relationship using a more reliable measure of management by exception active leadership, or a mistakes focussed leadership factor.

In this study, we found that passive-avoidant leadership and destructive leadership were both moderately negatively related to employee engagement. The literature looking at these specific leadership styles with employee engagement has been limited, even more so for destructive leadership. Therefore, this research contributes to the literature by offering further understanding and comparison of the relationships of these different leadership styles to employee engagement.

In line with JD-R theory, a potential reason for the negative relationship between passive-avoidant leadership and employee engagement is because passive-avoidant leadership reflects a lack of support, a lack of involvement, a lack of recognition, and likely a lack of resources that an employee needs to develop engagement. Our findings are similar to that of Blomme et al. (2015) who found laissez-faire leadership to be negatively related with employee engagement due to the lack of feedback, support, and coaching.

The negative relationship we found between destructive leadership and employee engagement could possibly be explained by the JD-R model (Crawford et al., 2010; Lee & Ok, 2015). The characteristics of destructive leadership represents controlling, authoritarian, micromanagement, and dictator like behaviours which likely undermine an employee's personal resources and/or acts as a demand on employees, which ultimately leads to reduced employee engagement. Future research

should specifically test these effects within the JD-R model to better understand this relationship. Our findings did show that autonomy need satisfaction fully mediated the relationship between destructive leadership and employee engagement. Which suggests that a possible significant reason destructive leadership has a negative relationship with employee engagement is because destructive leadership undermines the need for autonomy, which ultimately reduces employee engagement.

Satisfaction of the need for autonomy also fully mediated the relationships between transformational-contingent reward leadership and employee engagement (in a positive direction), and between passive-avoidant leadership and employee engagement (in a negative direction). These findings suggest that transformational and contingent reward leadership behaviours encourage satisfaction of the need for autonomy, which may ultimately lead to higher levels of engagement. This finding is in line with previous findings of Hetland et al. (2011). Whereas, passive-avoidant leadership discourages autonomy need satisfaction, which may ultimately lead to reduce levels of engagement. Yang (2015) argued against predominant literature and suggested that laissez-faire leadership could have positive outcomes because it creates more autonomy. Our results show that transformational-contingent reward was positively related to autonomy whereas laissez-faire leadership was negatively related to autonomy, suggesting that laissez-faire leadership actually reduces an employee's satisfaction with the need for autonomy, and supporting the majority of research which has found mostly negative relationships with laissez-faire leadership.

These findings are useful as they highlight the importance of autonomy to NZ dairy farmers in determining their level of engagement in their work. A practical implication of this is that farm leaders can recognise the importance of allowing their employees autonomy in their roles, challenging them to come up with solutions to problems for themselves, and also allowing them to have volition in the way they conduct their work. Future research could extend on this finding and also look at the interaction autonomy has with goal achievement as rated by the leader. If leaders can see that allowing their employees autonomy will not only increase engagement, but will also still lead to

desired performance outcomes, then this could further support a case for advancing leadership behaviours and allowing dairy farm employees more autonomy in their work.

Correlation analysis showed that autonomy need satisfaction was significantly and negatively related to management by exception active leadership, however, management by exception active was not significantly related to employee engagement, therefore, there was no mediating relationship to test. The management by exception active factor also had low reliability so this result should be interpreted with caution.

Correlation analysis showed that relatedness need satisfaction was significantly related to transformational-contingent reward leadership, passive-avoidant leadership, destructive leadership, and employee engagement. The relationships being positive for transformational-contingent reward leadership and employee engagement, and negative for passive-avoidant leadership and destructive leadership. While the criteria was met for testing mediation, in our study, relatedness need satisfaction did not mediate the relationship between any of the leadership styles and employee engagement. Which means there are likely other factors that explain the relationships between these leadership styles and employee engagement.

Even though we did not find a mediating relationship, the fact that relatedness is positively related to employee engagement, means leaders could still benefit from focussing on relational aspects in order to increase employee engagement, and reap the other benefits of having an engaged workforce. Further testing of this relationship and other confounding variables would be beneficial.

In our correlation analysis competence need satisfaction only significantly correlated with the destructive leadership factor (in a negative direction). There was no significant relationship between competence need satisfaction and the other leadership styles tested or with employee engagement, therefore, there was no mediating relationship to test. Looking specifically at our data, the majority of respondents rated their competence need satisfaction high, regardless of their leader's leadership style, or their own engagement level. This may suggest that employee competence need satisfaction is not easily effected by different leadership styles, except for when the

leadership is explicitly destructive, or that other factors or resources may be at play to enable them to maintain a high level of satisfaction in their competence. It also suggests that perhaps the competence need is not a strong influencer on their level of engagement.

Overall, our results only partially support the literature on needs satisfaction and self-determination theory, which suggests all three needs of autonomy, relatedness, and competence must be satisfied in order to achieve positive employee engagement (Deci & Ryan, 2000). However, we did find that autonomy need satisfaction was particularly important in explaining the relationships between transformational-contingent reward leadership, passive-avoidant leadership, and destructive leadership with employee engagement. These findings are important as there are a number of associated consequences of lowered autonomy needs satisfaction, for the individual and organisation, such as: diminished motivation, adverse health effects, burnout, and high turnover of key personnel (Hetland et al., 2011).

Our results were unable to find any significant relationships between any of the leadership styles tested in this study and milk production performance, or between employee engagement and milk production performance.

These findings are contrary to a multitude of previous research that supports significant relationships between leadership behaviour and performance (i.e. Gasper, 1992; Lowe, Kroeck, & Sivasubramaniam, 1996; De Groot et al., 2000; Dumdum et al, 2002; Judge & Piccolo, 2004), and significant relationships between employee engagement and performance (i.e. Harter et al., 2002; Salanova et al, 2005; Xanthopoulou, Bakker, Heuven, Demerouti, & Schaufeli, 2008; Schneider et al, 2009; Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2009; Crawford et al., 2010; Rich, LePine, & Crawford, 2010; Dalal et al., 2012).

A potential reason that we did not find any significant relationships between leadership and performance or employee engagement and performance, may be due to the particular milk production measure of performance that we used, which could have impacted the internal validity of these findings. Another possible reason may be due to the fact that only 36 out of 122 respondents



reported their milk production data. A low response rate for this measure indicates lower predictive validity.

Milk production is influenced by a number of variables, such as the weather, the feed system used on the farm, the size and type of milk shed, the condition of the races that the cows walk on, the quality of grass and feed management, the health of and breed of the cows. While some of these factors can be controlled by the employees and can be reflective of good farm performance, these confounding factors may have a more significant influence on milk production than leadership or employee engagement. Future research should focus on more objective measures of individual employee performance on farm, rather than a subjective overall organisational performance measure.

The low number of respondents reporting their milk production data is an interesting point in itself, and suggests that there may have been a drop off of participants through the survey, and/or that there were a significant amount of farm employees who did not know their production data. If the latter is the case, this is a concerning fact that suggests employees in the NZ dairy industry may not be aware of how well they performed, or of what overall goals they are working towards. This is also an important reflection of leadership characteristics.

Future research should look at other appropriate measures of performance on NZ dairy farms to further understand how leadership and employee engagement interact with both individual and overall business performance on farm.

As there were no significant relationships between leadership and performance or employee engagement and performance in our study, there was no mediating relationship to test, as per the conditions for mediation as outlined by Baron & Kenny (1986). Breevaart, Bakker, Demerouti, and Derks (2016) found employee engagement mediated the relationship between transformational leadership and performance, however, whether a mediating relationship still exists between other leadership styles and performance is not as well known, which is something this current study aimed

to investigate. Future research should investigate this relationship, looking at a variety of leadership styles, not just the popular transformational leadership.

### **Limitations**

By being focussed specifically on the NZ dairy industry, the results of this study likely have good reliability and internal validity, however, this in turn limits the external validity and generalisability of the results outside of the NZ dairy industry. With significant results being found in the NZ dairy industry it would be reasonable to replicate similar research in the sheep and beef and wider agricultural industries.

A possible limitation of this study is the relatively high drop-out rate from 122 respondents answering the first questions in the survey, to only 63 respondents answering questions at the end of the survey. Possible reasons for the high dropout rate could be that the survey was too long, or the fact that it was distributed during September/October which is the busy calving and mating season for most dairy farmers.

Another potential limitation is the fact that the survey was distributed solely through online means, and predominantly through the social media site facebook. This could have resulted in an over representation of younger generations who are more stereotypically likely to use social media compared to older generations. Although, demographic data on dairy farm employees suggest that the average age of this population is 33.6 years which is not dissimilar to the average age of our sample. Social media and online means of survey distribution do have their advantage for reaching a wide spread of potential respondents, with very little to no cost, or time investment. However it does have its limitations in that social media is more commonly used by younger generations, and there is no way to accurately track the true number of people that the survey reached.

### **Theoretical Implications**

#### ***Implications for Research***

This research has provided many contributions to the research literature on leadership, employee engagement, needs satisfaction, and performance. We have also provided the first

research on these factors within the NZ dairy farming industry. There is also very little to no research that has looked at these factors in an international farming context. From this point future research can look deeper in to the way leadership effects employees and organisational outcomes.

The factor structure that emerged in our study has important implications for the full range model of leadership and the MLQ measure of these leadership styles. The three separate leadership styles of transformational, transactional, and laissez-faire leadership as described by the full range model of leadership did not perfectly reflect the leadership styles present within our sample of NZ dairy farm employees. While our factor structure finding is contrary to a well-researched and well supported theory, other researchers have criticised the validity of the full range model of leadership and the MLQ in a range of contexts, and other researchers have specifically found similar factor structures as our current study, such as: Heinitz, Liepmann, Felfe (2005). Further research that looks at the validity of our factor structure in other sectors would be valuable.

Much of the previous research on leadership and employee engagement has focussed on one leadership style at a time (Casasco-Saul et al., 2015). Our study expanded on these approaches by examining and comparing the relationships of four separate leadership styles with employee engagement. There was also very little literature that looked at the way destructive leadership impacts employee engagement or performance, therefore, this study has contributed to the literature by providing evidence of a significant negative relationship between destructive leadership and employee engagement, by providing evidence of autonomy mediating this relationship, and by also providing evidence of this relationship within the unique NZ dairy farming industry.

We contributed contrary considerations to the literature on needs satisfaction by only finding partial support for needs satisfaction as a mediating factor between leadership and employee engagement. We found that autonomy was the most significant need satisfaction factor, in the NZ dairy farming context, in explaining the relationships between leadership and employee engagement. This may be unique to the NZ dairy farming industry or could be a viable outcome in other industries,

therefore, further research comparing the unique effects of each need across different contexts would be beneficial.

### ***Implications for Practice***

This research is the first to look into the effectiveness of leadership styles in the NZ Dairy industry. In doing this research we were able to identify that leaders who exhibit combined transformational and contingent reward behaviours are likely to have more engaged staff. We also found that passive-avoidant leadership and destructive leadership behaviours were particularly ineffective and detrimental to employee engagement. Showing that farm leaders who exhibit passive-avoidant or destructive behaviours will likely have lower employee engagement, and based on the literature likely a multitude of other issues associated with low engagement, such as burnout, health impairment, absenteeism, and turnover (Lee & OK, 2015). This is important information for the dairy industry and can be used to inform leadership awareness, training, and development in the industry. Deci and Vansteenkiste (2004) suggest that people tend to orient toward those situations that allow satisfaction of the needs and away from those that thwart the need. Therefore, given our finding that the need for autonomy is so important, leadership that encourages autonomy could be an important factor for attracting the best employees to their farm. Whereas, leadership that is passive and avoidant, or is destructive and diminishes the need for autonomy could be a big disadvantage for recruiting and keeping talented staff, and could also be a major disadvantage for developing engaged and high performing workforces, which could ultimately impact their bottom line. The attraction and retention of talented employees to the dairy is particular relevant given the industry demand and labour shortage that the NZ dairy industry is currently facing (Tipples et al., 2013). Therefore, the industry can utilise this information to develop leaders to use more transformational-contingent reward behaviours in their everyday leadership of employees, and to also learn the detriments of passive-avoidant, and destructive leadership behaviours.

## Future Research

Future research should expand on these findings and investigate how situational and individual variables impact the relationships between leadership and employee engagement. Identifying whether there are particular individual characteristics, situations, or contexts that change the effectiveness of these leadership styles. Further research should also look at the generalisability of our findings across the wider agricultural industries within NZ and internationally.

There are many ways to conceptualise performance on a dairy farm and more objective performance measures with a larger sample may provide further insight into the inter-relationship between leadership, employee engagement, and performance. As previous literature would indicate that leadership and employee engagement are significantly related to performance.

Hetland et al (2011) highlights the importance of leadership in the fulfilment of the three psychological needs. They suggest this relationship is mediated by the type of motivation the leader evokes. Therefore, future research may consider the motivational theories of leadership and investigate these relationships further and look at how leadership behaviours effect motivation, needs satisfaction, and outcomes such as engagement or performance.

As well as reducing employee engagement, the JD-R model suggests destructive leadership could likely lead to other negative outcomes such as stress and burnout (Lee & Ok, 2015). While this was not measured in the current study, this would be a valuable area of future study to understand within the NZ farming industry, given the explicitly high rates of mental illness and suicide in this industry (Federated Farmers, no date).

## CHAPTER 6: CONCLUSION

This study aimed to investigate which leadership styles were most effective in the NZ dairy industry, specifically in relation to employee engagement and milk production performance. We partially achieved this by identifying that transformational and contingent reward behaviours were the only leadership styles within the full range model of leadership that had a positive impact with employee engagement. Our findings that passive-avoidant and destructive leadership are negatively related to employee engagement is also beneficial information for the practical NZ dairy industry to know what leadership behaviours are not effective and which create low engagement in their staff. Having engaged employees is a target that all farmers and wider businesses should try to achieve because of the numerous positive outcomes that are associated with having engaged employees. Engaged employees are better able to problem solve, have more positive emotions, they are more involved in their work, they work harder and they perform their work better, which ultimately means the organisation performs better (Blomme et al., 2015).

In our study, we also found that autonomy is a significant contributor to employee engagement, and provides a significant contribution to explaining the effects of leadership on employee engagement. Put simply, we found that transformational-contingent reward leadership behaviours really encouraged autonomy needs satisfaction in the respondents, which led to high engagement. Whereas, passive-avoidant, and destructive leadership behaviours diminished autonomy needs satisfaction and resulted in lower levels of employee engagement in our respondents. The NZ dairy industry can take practical benefit from this information, and use it to develop awareness and leadership skills throughout the industry. They can also utilise this information to guide leadership development of current leaders to mitigate the consequences of no recruitment or selection processes which are often present when a farm owner takes the most senior leadership position. This information can also inform succession planning and recruitment and selection of mid-level and senior level managers in larger corporate farming operations.

While we were unable to link leadership or employee engagement to milk production performance, the literature is significantly strong in supporting positive relationships between leadership and performance, and between employee engagement and performance. We recommend that future research looks at different conceptualisations and measures of performance on farm to further investigate this relationship in the dairy farming or wider farming context.

As well as making some useful contributions to the practical dairy farming sector, our study has also made contributions to the scientific research field. We found a factor structure different to what the full range model of leadership suggests and what the MLQ proposes to measure. The validity of the well-used MLQ has previously been contended, our research adds further support to the argument that the factors within the full range model of leadership and the MLQ measurement tool are not always the best fit in all contexts.

This research has provided many contributions to the research literature on leadership, employee engagement, needs satisfaction, and performance. We have provided the first empirical research on these factors within the NZ dairy farming industry and also in the international farming context. Dairy farming, as well as other NZ farming industries are very unique compared to other corporate, labour, or service industries. However, our findings have shown that similar leadership and employee engagement trends can be seen in the dairy farming context, which shows good generalisability of the leadership styles within the full range model of leadership (even if not in the same factor structure).

We hope that this research will lead to further research in this industry to further understand the importance of leadership in the NZ dairy farming context, to go some way in starting to address some of the issues currently faced by the industry, and to create happier, more engaged, more productive, and higher performing farming businesses that will be sustainable into the future.

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